METRO GOLD LINE FOOTHILL EXTENSION

Preliminary Engineering Project Management Plan

TABLE OF CONTENTS

REVISION RECORD

ISSUE DATE	PAGES/SECTIONS AFFECTED	COMMENTS
June 2004	All	Issued for PE and FEIS/R
August 2005	All	Revised to address PMOC/FTA comments
December 2005	All	Revised to address PMOC/FTA comments
March 2007	All	Revised to address PMOC/FTA comments

1 INTRODUCTION

1.1 PURPOSE OF THE PROJECT MANAGEMENT (PMP) PLAN

As described in the Code of Federal Regulations (CFR 49), Chapter VI, Part 633, this Project Management Plan (PMP) is a management tool. The PMP establishes policies for project control, quality assurance, quality control and safety, and provides an overview of the management requirements needed to ensure completion of the Metro Gold Line Foothill Extension Project. The PMP defines the scope of project implementation during planning, preliminary engineering, final design, construction, testing and start-up. The PMP is intended to describe the general framework and organization for management of the project. Detailed procedures, consistent with the requirements of this PMP, are developed separately and are incorporated herein by reference.

This PMP defines methodologies to be utilized by the Authority to manage budgets, schedules, funding, procurement, staffing, interdepartmental and external agency coordination, consultants and contractors. In addition, the PMP describes how the Authority will disseminate project-related information.

The specific objectives of the PMP are to:

- Communicate Project objectives to all participants along with methods and identified resources required in meeting them.
- Create a team approach.
- Develop a framework for monitoring the Project.
- Develop a framework for establishing policies, procedures and standards.
- Develop a framework for updating the PMP.
- Identify responsibilities and relationships within the organization.
- Identify milestones for subsequent phases.
- Promote consistency.
- Promote schedule awareness.
- Provide instructions for the coordination of schedule interfaces.
- Provide a Project overview.

1.2 MAINTENANCE AND UPDATE OF THE PMP

The PMP is a dynamic document, which will be periodically updated and supplemented as the definition of the Project continues to reflect changes to the project budget, schedule, financing, and design. Revisions to the PMP are anticipated to be required for major events in the project and, where possible, revisions will be implemented well in advance of these milestones to ensure that any project organization changes can be conveyed to the FTA/PMOC in advance of implementation. The following events are anticipated to require PMP revision:

- Modifications requested by the FTA/PMOC
- Project enters a new phase in development (e.g. final design & construction)

- Major change in project definition (e.g. change in project scope, or commencement of Preliminary Engineering for Segment 2 of the project)

The need for PMP updates will be discussed with the FTA/PMOC at the quarterly meetings. After agreement on the intent and scope of revisions, the Chief Project Officer will direct staff to revise and update the PMP. PMP updates will be reviewed and approved by the Programs Management Director. Revision control will be through the "Revision Record" sheet.

1.3 COMPANION DOCUMENTS

As described in Section 1.1, specific procedure manuals and reports have or will be developed or revised as companion documents to the PMP as appropriate for the stage of the Project. These companion documents are described in the following table:

Exhibit 1-1: Companion Documents

Document Name	Current Revision	Responsible Person
Quality Assurance Program	TBD	Chief Project Officer
Risk Management Plan	TBD	Risk Manager
Safety and Security Management Plan	Draft	Safety/Security Manager
Safety Certification Plan	Draft	Safety/Security Manager
Preliminary Hazards Analysis	Draft	Safety/Security Manager
Cooperative Agreements with Corridor Cities and Agencies	10/23/06	Director of Procurement
Master Cooperative Agreement with LACMTA	Draft	Director of Procurement
Master Cooperative Agreement with CALTRANS	10/8/05	Director of Procurement
Construction Agreement with BNSF Railroad	TBD	Director of Procurement
Property Acquisition Plan	TBD	Project Controls Manager
Master Project Schedule	March 2007	Scheduler
Baseline Cost Estimate	October 2006	Facilities Manager
Bus Fleet Management Plan	TBD	Programs Management Director
Rail Fleet Management Plan	Draft	Programs Management Director
Integrated Testing and Start-Up Plan	TBD	Programs Management Director
LACMTA Design Criteria	8/4/98	Engineering Manager
LACMTA Fire/Life Safety Design Criteria	6/2/98	Engineering Manager
CPUC State Safety Oversight Plan	TBD	Programs Management Director
Procurement Policy	9/28/05	Director of Procurement

Document Name	Current Revision	Responsible Person
Document Control Plan	4/27/04	Document Control Manager
Change Control Procedure for Consultant Contracts	9/28/05	Director of Procurement
Change Control Procedure for Construction/Design-Build Contracts	9/28/05	Director of Procurement

1.4 CONFLICT WITH AUTHORITY POLICIES

If any inconsistencies or conflicts arise between this PMP and other currently established or future policies and procedures, the Authority's policies and procedures take precedence. Wherever any inconsistencies or conflicts arise between any current or future Authority contractual agreement with a contractor or a consultant, the contract or agreement shall govern.

1.5 CREATION AND COMMISSION OF THE LOS ANGELES TO PASADENA BLUE LINE CONSTRUCTION AUTHORITY

On September 30, 1998, Governor Pete Wilson signed State of California Senate Bill 1847, introduced by Senator Adam Schiff. SB-1847 established the Los Angeles to Pasadena Metro Blue Line Construction Authority for the purpose of awarding and overseeing all design and construction contracts for completion of the 13.7 mile Pasadena-Los Angeles Metro Blue Line light rail project from Union Station in the City of Los Angeles to Sierra Madre Villa Boulevard in the City of Pasadena, and any mass transit guideway that may be planned east of Sierra Madre Villa Boulevard along the rail right-of-way extending to the City of Claremont. The first phase of the project was successfully constructed and turned over to the Los Angeles County Metropolitan Transportation Authority (LACMTA) for revenue operations on July 26, 2003. See Exhibit 1-2 below.

Exhibit 1-2: Pasadena-Los Angeles Metro Blue Line Light Rail Project (Phase 1)

This PMP is prepared for Segment I of the Foothill Extension that is planned to continue the Light Rail Transit (LRT) System to the cities of Arcadia, Monrovia, Duarte, Irwindale and Azusa. The Authority, in cooperation with the cities along the alignment, has completed a Draft Environmental

Impact Statement and Report (DEIS/R) that meets the requirements of both the Federal Transit Administration (FTA) and the state of California (CEQA). The Authority Board certified the FEIR for Segment I of the Foothill Extension under CEQA in February 2007. Project environmental clearance under FTA/NEPA (FEIS) will be conducted separately. Revenue service is planned for Segment I of the Foothill Extension (from Pasadena to Azusa) in 2011.

The objectives of constructing the Foothill Extension are to:

- Improve transit mobility throughout the region.
- Provide direct access to downtown Los Angeles and efficient transit service throughout the San Gabriel Valley.
- Provide regional connectivity to rail transit modes and intermodal sites including the Metro Red Line, the future Metro Gold Line Eastside Extension (currently moving into construction), a future downtown rail Connector (now in its planning stages), and Metrolink Facilities; all of which directly connect via transfers or extensions to the current Metro Gold Line LRT system.
- Promote investment in potential joint development sites by connecting the area's transit systems.
- Construct the line rapidly and in a way that it can be operated efficiently by the LACMTA as part of its regional responsibility to operate all urban rail transit lines in Los Angeles County.

2 PROJECT HISTORY AND DESCRIPTION

2.1 HISTORY OF THE FOOTHILL EXTENSION

Extension of the Metro Gold Line through the San Gabriel Valley has been under study in various forms since of the early 1990's. Early studies included the Northern San Gabriel-San Bernardino Valley Transportation Corridor Preliminary Planning Study, completed in October 1992, and the Northern San Gabriel-San Bernardino Valley Rail Transport Corridor Final Environmental Impact Report in May 1994. During this period, the Atchison, Topeka & Santa Fe (AT&SF) Pasadena Subdivision between Pasadena and Claremont was purchased along with other AT&SF-owned rights-of-way (ROW). No further action was taken, due to lack of funding.

In 1998, the Authority authorized the preparation of the Metro Gold Line Phase II Corridor Alternatives Analysis Study, which was completed in April 2002. At the conclusion of this study, a Light Rail Alternative extending the Metro Gold Line 24 miles east of the Sierra Madre Station in Pasadena to the City of Montclair became the recommended alternative adopted by the eleven City Councils, the Governing Board of the San Gabriel Valley Council Of Governments, and the Board of Directors for the Los Angeles to Pasadena Metro Blue Line Construction Authority. This extension is referred to as the Metro Gold Line Foothill Extension.

In February 2004, a preliminary DEIS/R was submitted to the FTA for review/comment. Resolution of the comments were made and incorporated into the revised DEIS/R completed on April 23, 2004 and distributed for public review. Beginning May 7, 2004, a 45-day public hearing process was conducted to solicit comments and inputs from the public on the DEIS/R. Following the public hearing process and after reviewing the comments received, the Authority's Board of Directors recommended a refined Locally Preferred Alternative (LPA) in August, 2004. In January 2007, the Authority published the FEIS for the Foothill Extension. The Authority's Board adopted and certified Segment I of the project under the California Environmental Quality Act (CEQA) in February 2007.

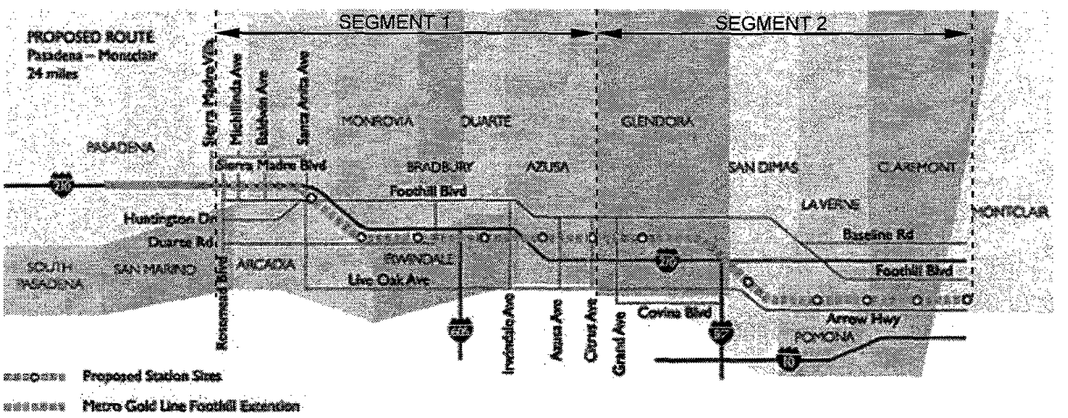
2.2 FOOTHILL EXTENSION DESCRIPTION

The Foothill Extension expands the Metro Gold Line LRT system approximately 11.4 miles east from the City of Pasadena to the City of Montclair. The extension runs along the previously acquired AT&SF railroad ROW, paralleling Interstate 210 (I-210) and Arrow Highway, and connects the historic downtowns of Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair. The Foothill Extension will be implemented in two Segments; Segment I from the existing Gold Line terminus in Pasadena to Azusa; and Segment II from the Segment I terminus at the Azusa/Glendora city boundary to Montclair. Through the Alternatives Analysis, DEIS/R and FEIS/R level of development, both Segment I and Segment II are developed in parallel. From the Preliminary Engineering level onwards, Segment I will be developed separately, and in advance of, Segment II. The Authority plans to execute final design and construction of both Segments through the Design/Build method of project development and the Authority's organization, staffing and procedures will be created commensurate with this.

This PMP currently focuses on the project organization and procedures for Segment I. The PMP will be revised to incorporate the Segment II project in advance of it entering the Final Environmental and Preliminary Engineering development stage. It is anticipated that Companion Documents referenced in this PMP would be applicable (with minor revisions in some cases) to Segment II.

The Segment I project is considered a low-risk project as compared to other transit projects as it takes advantage of a previously purchased railroad right-of-way, utilizes the existing Division 21 (Midway) Maintenance and Storage Facility, and requires the usage of only 8 Light-Rail Vehicles (two-car trains) operating during peak hours. Additionally, through joint cooperative efforts with the BNSF Railroad and the LACMTA, freight operations will parallel only 4.3 miles of the alignment on independent alignment, never requiring mixed freight/passenger operations of any sort.

Exhibit 2-1: Foothill Extension Proposed Route Map



2.3 PROJECT BUDGET AND FINANCE PLAN

This section provides a summary of the capital cost estimated for the project and the planned finance plan to support the project.

At the current level of project development, budget and financial figures are generated from the DEIS/R and consequently are applicable to Segments I and II combined. The information contained in this section will be updated upon completion of the FEIS/R and after approval of future FTA New Starts (5309) applications.

2.3.1 Project Capital Cost Estimate

[This Section to be updated to reflect the 5309 PE application for Segment I only]

The capital cost for Segments I and II of the Foothill Extension is estimated at $1.016 billion (2003 dollars) and $1.331 billion YOE, as shown in Exhibit 2-2 below.

Exhibit 2-2 Foothill Extension Segments I and II Capital Costs[1]

Project Elements Phase II Full Build W/ 3 Track Configuration	2003 Dollars (Millions)	YOE Dollars (Millions)
Guideway	$ 269.2	$ 313.1
M&O Facility	$ 120.8	$ 132.4
Systems	$ 157.0	$ 184.7
Stations	$ 57.8	$ 67.3
Sub-Total Construction	***$ 604.8***	***$ 697.5***
Vehicles	$ 67.1	$ 82.2
Special Conditions	$ 58.5	$ 67.5
Right-of-Way	$ 51.3	$ 56.8
Professional Services	$ 159.2	$ 190.6
Contingencies	$ 75.3	$ 87.6
Sub-Total	***$ 411.4***	***$ 484.7***
TOTAL CAPITAL COST	**$ 1,016.2**	**$ 1,182.2**
Interest Cost	$ -	$ 41.5
Prior Expenditure for Right-of-Way	$ -	$ 107.0
TOTAL PROJECT COST	**$ 1,016.2**	**$ 1,330.7**

2.3.2 Project Financial Plan

[This Section to be updated to reflect the 5309 PE application for Segment I only]

The financial plan for the Segments I and II of the Foothill Extension, adopted by the Authority's Board, and published in the DEIS/R is shown in Exhibit 2-3 below.

Exhibit 2-3 Foothill Extension Segments I and II Financial Plan[2]

Los Angeles to Pasadena Metro Blue Line Construction Authority
Phase II Financial Plan Revision

Work Breakdown Structure (WBS) Code ($000) based on Year of Expenditure	Adopted Financial Plan Jun-03	Proposed Financial Plan Mar-04	Variance Inc / (Dec)
REVENUES - PHASE II			
SCAG	1,400	1,000	(400)
Interest	2,000	2,000	0
Bridge Replacement	13,900	13,900	0
Phase I Carryover	10,000	10,000	0
MTA	124,800	124,800	0
Cities	49,800	52,000	2,200
Real Estate	101,900	101,900	0
JPA	3,800	3,800	0
State SHA	355,200	339,400	(15,800)
Federal TCSP	2,900	6,900	4,000
Federal Intermodal	20,000	20,000	0
Federal 2005 Appropriation Request	0	10,000	10,000
Federal New Starts (5309)	686,300	686,300	0
TOTAL AUTHORITY REVENUES PHASE II	1,372,000	1,372,000	0

[1] Per the 2004 DEIS/R and the 5309 Report. Estimate excludes costs prior to final design.
[2] Per the 2004 DEIS/R and the 5309 Report.

2.4 PROJECT MASTER SCHEDULE

The Project Master Schedule for the Foothill Extension may be found in Appendix A. This schedule identifies a target date for Construction of Segment I in 2011.

Refer to section 4.2 of this PMP for discussion of schedule control.

3 ORGANIZATION AND STAFFING

This section describes the project organizational structure, key management and staff positions, internal and external interfaces as they relate to capital projects, and personnel policies. The project involves the cooperative efforts of a number of local, state, and federal agencies. Identified in this section are the major participants in the project and their general functions and roles.

3.1 PARTICIPATING FEDERAL, STATE AND LOCAL AGENCIES

3.1.1 Federal Transit Administration

The Federal Transit Administration (FTA), an agency of the United States Department of Transportation, provides financial and technical assistance to support urban areas in planning, developing and improving transportation systems. The FTA administers the allocation and use of federal funds for transportation projects. The FTA designates a Project Management Oversight Consultant (PMOC) to provide oversight of the project on the FTA's behalf.

3.1.2 Los Angeles County Metropolitan Transportation Authority

The Los Angeles County Metropolitan Transportation Authority (LACMTA) is the owner of the project alignment and will become the designated operator of the Gold Line once construction is substantially complete. The LACMTA is involved in the project from conception to completion. The LACMTA provides various documents and services to the project, including:

- Design criteria and standards and approval of waivers thereto
- Membership of Fire/Life Safety Committee
- Leadership of Rail Activation Group
- Design review
- Rail vehicles and operators
- Operating procedures and rule book
- Central Control and train dispatch
- Certain maintenance and operations personnel and services during testing and start-up
- Maintenance and operations personnel and services from pre-revenue operations onwards

In addition, LACMTA may provide certain procurements and equipment for the project, such as ticket vending machines and validators.

The relationship between the LACMTA and the Authority is formalized through an existing Master Cooperative Agreement (MCA). A project-specific MCA has been developed and will be finalized after the project has achieved a Record of Decision from the FTA.

3.1.3 California Public Utilities Commission

The California Public Utilities Commission (CPUC) is the designated state safety oversight agency. The CPUC is responsible for review of the project from a safety standpoint and for review of the project for compliance with CPUC General Orders and regulations.

As the project enters final design and construction, the CPUC's involvement in the project will be formalized through a State Safety Oversight Plan.

3.1.4 California Department of Transportation

The California Department of Transportation (CALTRANS) is involved in the project to the extent that the alignment crosses, or operates along the median of, State I-210 and I-605 at several locations. Where this occurs, the design must be coordinated with CALTRANS and, where applicable, comply with CALTRANS standards.

As the project enters final design and construction, CALTRANS' involvement in the project will be formalized through a Master Cooperative Agreement.

3.1.5 Burlington Northern & Santa Fe Railroad

The Burlington Northern & Santa Fe Railroad (BNSF) has an agreement with the LACMTA, providing them exclusive access rights to the rail corridor for rail freight service. The BNSF is involved in the project to the extent that existing freight tracks are modified and/or relocated as part of the project.

As the project enters final design and construction, the BNSF's involvement in the project will be formalized through an Agreement or Memorandum of Understanding.

3.1.6 Local and Other Agencies

The Authority is interfacing with local and other agencies, including each city along the project alignment, the U.S Corps of Engineers (for the San Gabriel River Bridge), Los Angeles County Department of Public Works, the Southern California Regional Rail Authority (SCRRA/Metrolink), the Federal Railroad Administration (FRA) and various public and private utility companies.

As the project enters final design and construction, the involvement of local and other agencies in the project will be formalized through Cooperative Agreements, utility agreements, or Memoranda of Understanding as appropriate.

3.2 MANAGEMENT RESPONSIBILITY

The Authority is legally charged with the responsibility of managing the planning, engineering and construction of the Foothill Extension. Currently, the Authority is responsible for the execution of the PE and FEIS/EIR scopes of work and to maintain the schedule and budget to advance the Project into Final Engineering and Construction.

The Authority is not responsible for the operation or maintenance of the Gold Line. In accordance with State of California Senate Bill 1847, the Authority is only responsible for development, design and construction of the Gold Line. Therefore, the Authority's organization and structure is directed only towards development, design and construction of the rail line. Operations and maintenance of the Gold Line is the responsibility of the LACMTA. The organization and structure necessary to support these tasks are not within the purview of the Authority and are not addressed in this Project Management Plan.

3.3 MANAGEMENT STRUCTURE

The Chief Executive Officer (CEO) is responsible for managing all phases of the Project and is the single point of contact for the Authority. The CEO reports to and is directed by a Board of Directors consisting of representatives from the Cities of Pasadena, South Pasadena and Los Angeles, the LACMTA, and the San Gabriel Council of Governments. In addition, there are three ex-officio members on the Board including a Governor appointee and two ex-officio members from the City of Pasadena and the Joint Powers Authority that provide direct input to the Board.

The Board of Directors sets overall project goals and directives. The CEO is responsible for the successful implementation of these policy goals and directives. Under the CEO's delegated authority, the department officers/managers have a wide range of responsibilities for the management of resources and progress of the project. The Authority's internal structure consists of a small core of dedicated staff, supported by consultants who bring in specialized management and technical expertise.

The following describes the overall responsibilities of the Authority and the delegated duties.

3.3.1 Authority Duties

The overall responsibility of the Authority is to successfully complete the project and to institute a planned revenue service "on schedule and within budget". Among the more significant responsibilities of the Authority are:

- Develop a plan for design/build procurement;
- Finalize the FFGA with the FTA and secure federal and state funds by other agreements, contracts, resolutions and funding commitments;
- Maintain the staff and assemble the consultant resources for project management, control, design, construction, procurement, quality assurance, environmental compliance, related administration, start-up and testing;
- Reach agreement with each agency where their facilities or operations are impacted temporarily or permanently by the project, such that means of resolving such conflicts become formally agreed to in all respects;
- Execute the adopted procurement code and enter into contracts for management, design, construction and procurements;
- Oversee the ongoing project work of the project management consultants, and Design/Build Contractors, other contractors, suppliers and other project participants;
- Manage risks inherent in the project;
- Provide the planned levels of public transit service, including the adopted levels of system assurance, safety and security;
- Maintain an effective program of public information pertaining to the project;
- Establish and maintaining liaison with local, state and federal agencies;
- Enter into agreements with developers and other private sector entities to effect their participation in project implementation;

- Acquire real estate property for station parking lots, and other small parcels along the corridor for alignment purposes, including imposition of powers of eminent domain, and obtain temporary or permanent easements as required;
- Project annual cash flow and manage fund commitments and expenditures on a day-by-day basis;
- Protect Authority rights and interests and defending same for the public good; and
- Review, test, approve and accept work products, equipment and items furnished by all consultants, contractors and suppliers.

Although the Authority will retain consultants to oversee the day-to-day management of the project, there are program requirements and responsibilities that cannot be delegated by contract or agreement to entities beyond the Authority itself. These include:

- Submitting the environmental documentation to the FTA;
- Oversight of consultants;
- Preparing various senior staff-level policies and procedures in furtherance of Board policies;
- Applying for, receiving, and administering state, local and federal funds for project implementation;
- Ensuring control over the project;
- Entering into agreements with other agencies and third-parties which permit changes to their facilities and operations necessary for implementation of the project;
- Establishing risk management programs and related insurance coverage;
- Preparing and adopting annual budgets for capital expenditures;
- Certifying safety and security of the system; and
- Grantee responsibility for project

3.3.2 Delegated Duties

Refer to section 3.5 for the duties and tasks for which the Authority will engage consultants, contractors, and suppliers.

3.4 PROJECT STAFFING REQUIREMENTS

The Staffing Plan consists of a mix of dedicated Authority staff and Consultants, referred to as the Program Management Consultants (PMC). The responsibilities for the Project lie with the Chief Executive Officer (CEO) and his core management team. Exhibit 3-1 illustrates the roles and functions for each of the project team members.

3.4.1 Authority Organization During Preliminary Engineering

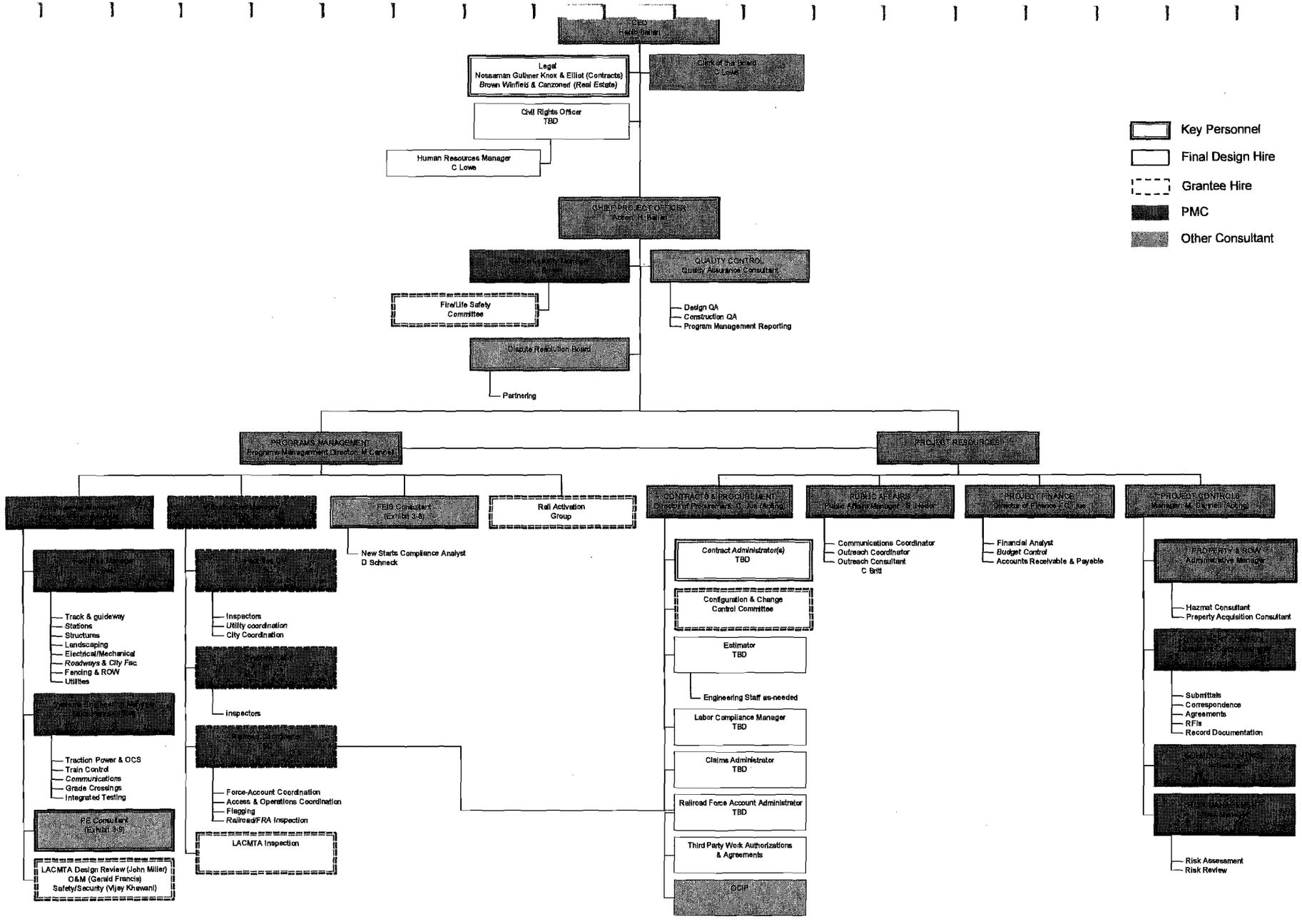
The Authority was created for the sole purpose of developing, designing and constructing the Gold Line. Therefore, the Authority's and the project's organizational structure is tailored and phased to change as the project moves forward. Therefore, during the Preliminary Engineering

phase, certain roles and functions not necessary at that stage in project development will remain vacant. In addition, to maximize efficiency of the project organization, multiple roles may be filled by single individuals.

From an overall perspective, the project is directed through the Chief Project Officer, who has certain direct-reports in the critical areas of safety, quality and disputes. The project development is managed on a day-to-day basis through the Programs Management Director, who has oversight of design and construction. The Chief Project Officer, and the project as a whole, is supported through several resources pool functions, including Project Controls, Contracts and Procurement, Finance, and Public Affairs.

3.4.2 Chief Executive Officer

The Board of Directors selects the Chief Executive Officer (CEO). The CEO provides administrative and executive-level program management oversight. The CEO is the Contracting Officer for the project and is responsible to the Board of Directors for ensuring contracts and the contracting process complies with established procedures and requirements. The CEO is also responsible for the successful implementation of Board-directed policy goals and directives.



For example, the Construction Management/Inspection staff and organization are not illustrated.

3.4.3 Project Executive Level Staff Roles & Responsibilities

The project is managed overall at the Executive level through a Chief Project Officer. Refer to Exhibit 3-2 for the organization of the project at the Executive level. Key personnel are the Chief Project Officer and Safety & Security Manager.

The Chief Project Officer (CPO) is responsible to the CEO and the Authority Board of Directors for overall management of the Foothill Extension project. The CPO, as the Project Manager for the Foothill Extension, provides administration, oversight and direction of all project activities. The CPO is responsible to the CEO and Board of Directors for management of the project's finances, provides financial administration and oversight, and provides reporting of financial matters and status to the Board of Directors. The CPO is the chief point of contact with the FTA and PMOC. The CPO also manages the Disputes Resolution process for the Project. Key qualifications for the position of CPO are; 15 years of experience in the management of final design and construction of rail transportation projects; and a Bachelor's Degree in Engineering or Business Management.

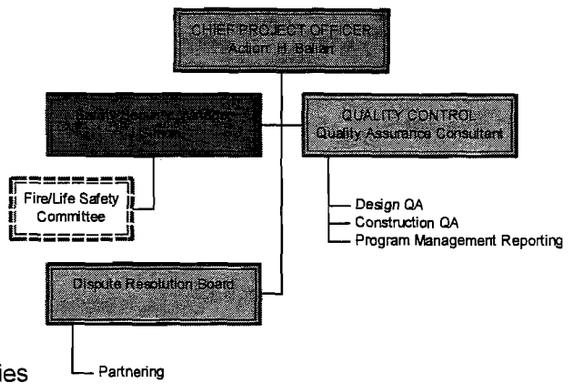
The Safety & Security Manager is responsible to the CPO for management of project design, construction and configuration for safety and security. The Safety & Security Manager's duties include development safety plans, oversight of safety activities by consultants and contractors, and chairing the Fire/Life Safety Committee. Key qualifications for the position of Safety & Security Manager are; 10 years of experience in safety engineering of transportation systems; and a Bachelor's Degree in Engineering.

In addition, the Quality Assurance Consultant, as described in Section 3.5.4, reports directly to the CPO.

Exhibit 3-2: Project Executive Level Staff & Responsibilities

Chief Project Officer

- Oversees Engineering and Construction Effort
- Oversees project finance, budget and schedule
- Authority Project Administration
- Manager of Resource Pool
- Authority Project Reporting
- Coordinates with FTA Staff
- Coordinates with Funding & Oversight Entities
- Progress Reports



Safety & Security Manager

- Management of safety and security in project design, construction and configuration
- System Safety and Security Management Plan
- Safety Certification
- Hazard and Safety Analyses
- Chair Fire/Life Safety Committee
- Liaison of LACMTA on safety & security matters

3.4.4 Programs Management Key Staff Roles & Responsibilities

Refer to Exhibit 3-3 for the organization of the Programs Management Department. The Programs Management Department is responsible for overall design and construction management of the project, including; design and construction management; testing, activation and start-up; and liaison with external agencies, including transportation operators, corridor cities, the CPUC and the FRA. Key personnel in this department are the Programs Management Director; Engineering Manager; Facilities Manager; Systems Engineering Manager; Construction Manager; Facilities Construction Manager; Systems Construction Manager and Railroad Coordinator.

The Programs Management Director is responsible for all project engineering and construction contracts and staff and reports to the CPO. The Programs Management Director is the lead negotiator with transportation agencies and authorities, and shall be the lead person for project activation and start-up activities. The Programs Management Director will also be responsible for Quality Assurance until a QA Consultant is hired. Key qualifications for the position of Programs Management Director are; 10 years of experience in the management of final design and construction of rail transportation projects; 5 years experience in the operation of rail transit systems; and a Bachelor's Degree in Engineering or Business Management.

The Engineering Manager reports to the Programs Management Director and is responsible for all project engineering and design, including the work of Authority staff/PMC, consultants and design/build contractors. The Engineering Manager oversees and coordinates the progress of all design and design review, including coordination with third parties (e.g. LACMTA, Caltrans, BNSF and corridor cities). Key qualifications for the position of Engineering Manager are; 10 years of experience in the management of final design and construction of rail transportation projects; and a Bachelor's Degree in Engineering or Business Management.

The Facilities Manager reports to the Engineering Manager and is responsible for all project facilities engineering and design, including the work of Authority staff/PMC, consultants and design/build contractors. The Facilities Manager oversees and manages the Authority's Preliminary Engineering consultant. The Facilities Manager also provides cost estimating support to the Project Controls Department. Key qualifications for the position of Facilities Manager are; 10 years of experience in the management of facilities final design and construction of rail transportation projects; and a Bachelor's Degree in Civil or Mechanical Engineering.

The Systems Engineering Manager reports to the Engineering Manager and is responsible for all project systems engineering and design, including the work of Authority staff/PMC, consultants and design/build contractors. In addition to overseeing systems engineering, the Systems Engineering Manager will be experienced in design/build projects and will lead the development of design/build contract technical documents. The Systems Engineering Manager also provides cost estimating support to the Project Controls Department. Key qualifications for the position of Systems Engineering Manager are; 10 years of experience in the management of systems final design and construction of rail transportation projects; 8 years of experience in design/build rail transportation projects; and a Bachelor's Degree in Electrical or Electronic Engineering.

The Construction Manager reports to the Programs Management Director and is responsible for all project construction. Key qualifications for the position of Construction Manager are; 10 years of experience in the management of construction of rail transportation projects, including 5 years of experience in the construction of design/build rail transportation projects; and a Bachelor's Degree in Civil or Mechanical Engineering.

The Facilities Construction Manager reports to the Construction Manager and is responsible for all civil construction. Key qualifications for the position of Facilities Construction Manager are; 10 years of experience in the management of construction projects, including 5 years of experience in the construction of rail transportation projects; and a Bachelor's Degree in Civil or Mechanical Engineering.

The Systems Construction Manager reports to the Construction Manager and is responsible for all systems construction. Key qualifications for the position of Systems Construction Manager are; 7 years of experience in the construction of systems for rail transportation projects; and a Bachelor's Degree in Electrical or Electronic Engineering.

The Railroad Coordinator reports to the Construction Manager and is responsible for all liaison and coordination of construction with on-going railroad and LACMTA operations[4]. Key qualifications for the position of Railroad Coordinator are; 7 years of experience in rail operations.

[4] Latter is limited to coordination of work to be performed at the existing terminus of the Gold line in Pasadena.

Exhibit 3-3: Project Management Department Staff & Responsibilities

Programs Management Director

- Directs all Engineering & Construction Contracts
- Chief Negotiator with Transportation Entities & Authorities (LACMTA, BNSF, SCRRA, CPUC, FRA)
- Fire/Life Safety Implementation
- Project Testing, Activation & Start-Up
- Rail Activation Group
- Bus & Rail Fleet Management Plans

Engineering Manager

- Systems & Facilities Engineering Management and Coordination
- Design review & liaison with third parties
- Design Compliance
- Design Integration

Facilities Manager

- Facility Design/Engineering
- Utility Coordination
- Construction Review
- Cost Estimating

Systems Engineering Manager

- Systems Design/Engineering
- Design/Build Lead
- Construction Review
- Cost Estimating for Systems

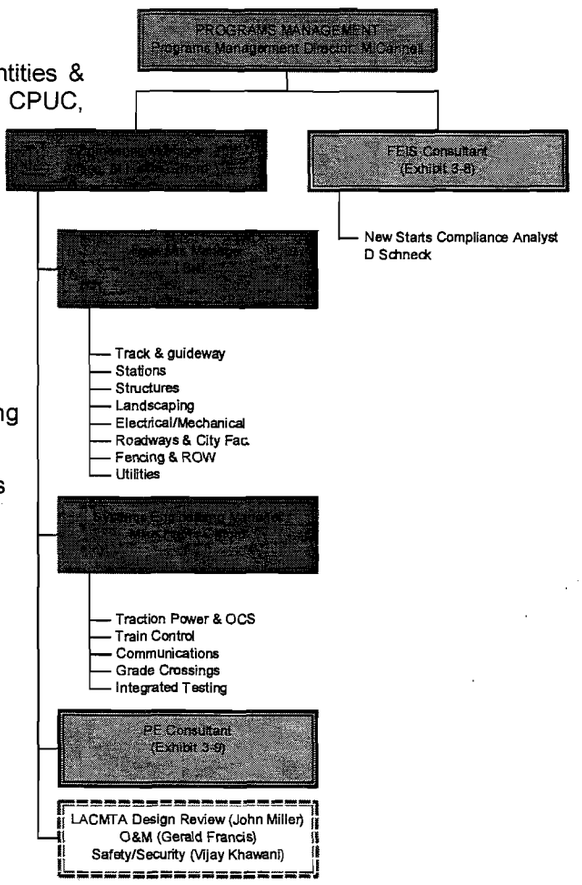


Exhibit 3-3: Contd

Construction Manager

- Construction Oversight
- Management of Inspection Team

Facilities Construction Manager

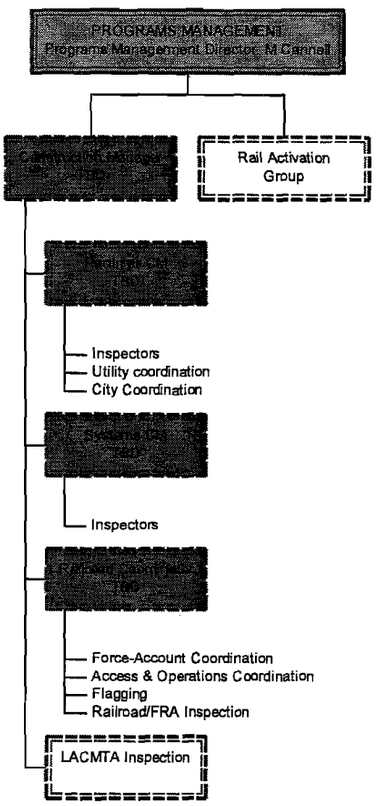
- Civil/Facilities Construction Oversight
- Management of Inspection Team

Systems Construction Manager

- Systems Construction Oversight
- Management of Inspection Team

Railroad Coordinator

- Construction coordination with SCRRA/BNSF
- Construction coordination with LACMTA
- Flagging
- BNSF/SCRRA inspection coordination



3.4.5 Contracts and Procurement Key Staff Roles & Responsibilities

Refer to Exhibit 3-4 for the organization of the Procurement Department. The Procurement Department is responsible for procurement and contract administration services to the project, including; procurement management; development of contracts; contract management; change-order and claims management; DBE and labor compliance; and development of cooperative agreements. Key personnel in this department are the Director of Procurement; and the Contract Administrator.

The Director of Procurement is responsible to the CPO for management of project procurement and contracts. The Director of Procurement's duties include management of procurement and contracts, including RFP and contract development; procurement policies and procedures; change-order and claims management; and labor compliance. The Director of Procurement is also responsible for managing the project's Owner-Controlled Insurance Program (OCIP). Key qualifications for the position of Director of Procurement are; 8 years of experience in contract management, including management of major transportation projects; and a Bachelor's Degree in Business Management.

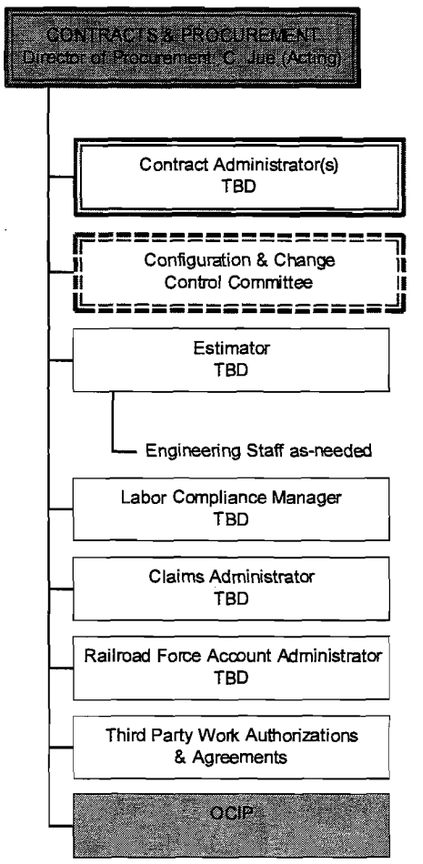
The Contract Administrator(s) report to the Director of Procurement and are responsible for administration of Authority contracts, including contract changes; DBE and labor compliance (assisted by the Authority's Civil Rights Officer); and contract correspondence. Key qualifications

for the position of Contract Administrator are; 5 years of experience in contract management of rail transportation projects.

Exhibit 3-4: Contracts and Procurement Staff & Responsibilities

Director of Procurement

- Procurement Management
- RFP and Contract Development
- Contract Management
- Claims Management
- Establishes Procurement Policy and Procedures
- Negotiates Change Orders and Amendments
- Manager of Contract Administrator and Estimator
- Manager of Labor Compliance Manager
- Managers OCIP program
- Ensures legal compliance
- Cooperative Agreements



Contract Administrator

- Configuration & Change Control Committee
- Processes Change Orders
- Drafts Contractual Letters
- Monitors DBE and Labor Compliance Managers
- Records Maintenance
- Directs Estimator

Labor Compliance manager

- Establishes Labor Compliance Policy and Procedures
- Reviews contract labor compliance reports

Estimator

- Prepares Independent Cost Estimates

Claims Administrator

- Claims Review
- Change Order Processing

Railroad Force Account Administrator

- Manages force-account contracts (e.g. railroad flagging)

3.4.6 Public Affairs Key Staff Roles & Responsibilities

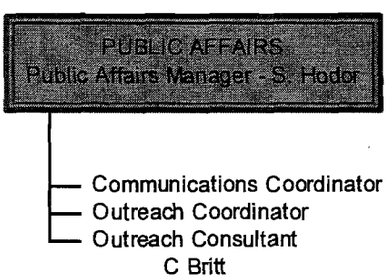
Refer to Exhibit 3-5 for the organization of the Public Affairs Department. The Public Affairs Department is responsible for all community and public relations for the Authority and the project, as well as oversight of community outreach and safety throughout construction. Key personnel in this department are the Public Affairs Manager.

The Public Affairs Manager is responsible to the CPO for management of all public liaison and information matters for the project. The Public Affairs Manager's project duties include management of public relations and outreach and media relations. Key qualifications for the position of Public Affairs Manager are; 5 years of experience in the management of public relations for a public or private agency; and a Bachelor's Degree.

Exhibit 3-5: Public Affairs Staff & Responsibilities

Public Affairs Manager

- Oversees All Public Relations and Community Outreach Efforts
- Manages contractor community interaction during construction
- Special Event Management
- Liaison with All Cities Along the Corridor
- Develops all Public & Collateral Materials



Communications Coordinator

- Web Site Management
- Media Coordination
- Community Presentations
- Produces public education and project collateral materials

Outreach Coordinator

- Schedules & Coordinates Public Events/Meetings
- Project Stakeholder and Elected Official Briefings
- Attends construction meetings to oversee community & business mitigation and notification
- Oversees project hotline throughout construction
- Implements school/community safety outreach

Outreach Consultant

- Supports Efforts of the department

3.4.7 Finance Key Staff Roles & Responsibilities

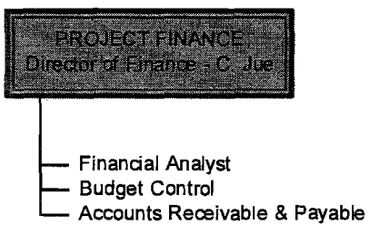
Refer to Exhibit 3-6 for the organization of the Finance Department. The Finance Department is responsible for all fiscal matters related to the Authority, including management of the budget and finances for the Foothill Extension project. Key personnel in this department are the Director of Finance.

The Director of Finance reports to the CPO and is responsible for fiscal administration and reporting for the project. The Director of Finance reviews and monitors the project budget and cash-flow, including all executed contracts, as well as Authority staff time billed to the project. The Director of Finance is responsible for management of the federal New Starts Grant, including; the Grantee Application; Full Funding Grant Application and negotiation; and monitoring Appropriations from the federal government. The Director of Finance is also responsible for managing changes to project budget and resulting cash-flows arising from project Betterments executed by state and local agencies and cities. Key qualifications for the position of Financial Officer are; 8 years of experience in auditing or financial management of a public or private agency; and a Bachelor's Degree in Accounting and Finance.

Exhibit 3-6: Finance Department Staff & Responsibilities

Director of Finance

- Project Financial Administration
- Project Financial Reporting
- Project Budget Management
- Grants Management
- Information Systems
- Invoice approval



Accountant

- Accounts Receivables
- Accounts Payables
- Invoice Processing

Financial Analyst

- Project Finance Planning
- Cost Effectiveness

3.4.8 Project Controls Key Staff Roles & Responsibilities

Refer to Exhibit 3-7 for the organization of the Project Controls Resource Team. Project Controls is responsible for various project administrative and management services to the project, including; document control; property acquisition, lease and easements; schedule control; risk management; and administration of existing properties and leases. Key personnel in this department are the Project Controls Manager; Administrative Manager; Document Control Manager; Scheduler; and Risk Manager.

The Project Controls Manager is responsible to the CPO for management of the Project Controls Resource Team. The Project Controls Manager's project duties include management of existing real estate, the acquisition of new property, joint development programs, document control, schedule control, and risk management. Key qualifications for the position of Project Controls Manager are; 7 years of experience in the administrative management of a public agency or construction projects; and a Bachelor's Degree in Business Management.

The Administrative Manager is responsible to the Project Controls Manager for management of project property. The Administrative Manager's project duties include management of existing real estate, the acquisition of new property, and joint development programs. The Administrative Manager is also responsible for management of hazmat and property acquisition consultants and on-call contractors. Key qualifications for the position of Administrative Officer are; 7 years of experience in the administrative management of a public agency, including property management.

The Document Control Manager reports to the Project Controls Manager and is responsible for the receipt, control, distribution and monitoring of all project correspondence and submittals. Key qualifications for the position of Document Control Manager are; 6 years of experience in document control and management for multi-million dollar capital construction contracts.

The Scheduler reports to the Project Controls Manager and is responsible for development and maintenance of the project master schedule. In addition, the Scheduler is responsible for review of contractor baseline and monthly schedules. Key qualifications for the position of Scheduler are; 5 years of experience in the scheduling of major construction projects.

The Risk Manager reports to the Project Controls Manager and is responsible for development and maintenance of the project risk assessment. Key qualifications for the position of Risk Manager are; 5 years of experience in risk assessment of major construction projects.

Exhibit 3-7: Project Controls Staff & Responsibilities

Project Controls Manager

- Real Estate/Joint Development
- Management of Existing Properties and Leases
- Document Control
- Schedule Control
- Risk Management

Administrative Manager

- Real Estate/Joint Development
- Property Acquisitions
- Management of Existing Properties and Leases
- Property Acquisition & Management of Property Acquisition Consultant
- Hazmat Management

Document Control Manager

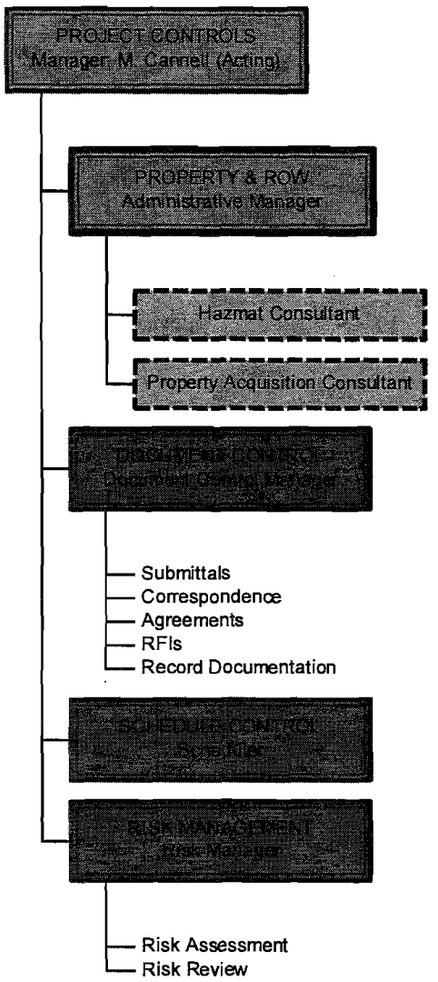
- Manages in/out going Mailings
- Copying
- Document Filing
- Database Management
- Manages RFP, Addenda and Bidder Question control and issuance
- Manages Contract RFIs, Change Orders, submittal reviews and other Contract correspondence

Scheduler

- Master Schedule
- Review of Contractor schedules

Risk Manager

- Project Risk Plan, Assessment & Management



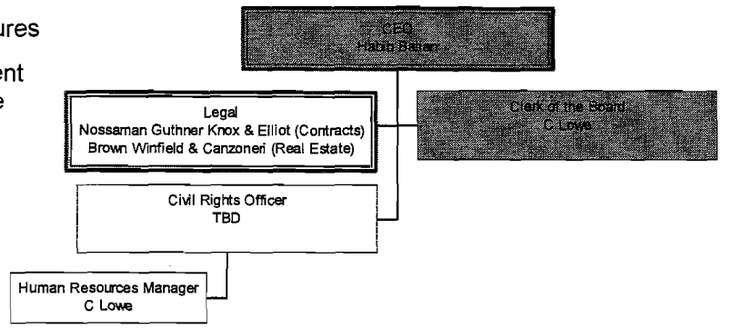
3.4.9 Other Staff Roles & Responsibilities

Refer to Exhibit 3-8 for other Authority staff positions.

Exhibit 3-8: Other Staff & Responsibilities

Civil Rights Officer

- Human Resources & Labor Compliance Policies & Procedures
- Assists Procurement Department with labor and DBE compliance programs
- Outreach to DBE community



Human Resources Manager

- Human Resources
- Staff hiring

Clerk of the Board

- Records and minutes Board meetings
- Assembles and distributes Board agenda and information
- Organizes Board meetings

3.5 KEY CONSULTANTS AND CONTRACTORS

The following consultant and professional services will support the Authority.

- Program Management Consultant (PMC)
- FEIS/EIR Consultant
- PE Consultant
- Quality Assurance Consultant
- Specialized Professional Services

3.5.1 Program Management Consultant

The Program Management Consultant (PMC), lead by Booz Allen & Hamilton inc., serves as an extension of the Authority staff, whose Program Manager (in the project functional position of Engineering Manager for the Authority) will report directly to the Director of Programs Management. Specifically, the PMC will provide the following services through a small, dedicated management and engineering staff supported by a technical resource pool available to support short-term and specialized tasks as required. Refer to Section 3.4 for the organization chart; the PMC is fully integrated into the Authority's organization structure and for the purposes of this PMP, reference to "Authority staff" may mean actual Authority employees or PMC staff. PMC responsibilities include:

- Developing the Request For Proposals(s) for Environmental, Engineering and Quality Assurance consultants;
- Developing and maintaining the Master Schedule;
- Overseeing the PE and FEIS/EIR Consultant's technical progress and schedule;
- Review of the PE and FEIS/EIR deliverables to assure the proposed elements are within the requirements of the design criteria, and that the costs for these systems are reasonable;
- Coordination of review of PE and FEIS/EIR deliverables by third parties;
- Develop Stakeholder Agreements with the Cities and Operating Entities;
- CPUC coordination and development of CPUC Grade Crossing Applications
- Establishing and administering Project/Document Control & Configuration Management policies and procedures;
- Development of the Financial Plan;
- Real Estate identification and acquisition support;
- Develop scope of work and selection criteria for the design/build contracts;
- Prepare design/build pre-qualifications packages;
- Participate in the design/build pre-proposal conferences;
- Participate in the design/build qualifications evaluations;
- Prepare addenda to design/build contracts;
- Evaluate proposals/bids;
- Participate in negotiations with Design/Build Contractors;
- Quality Assurance and Quality Control oversight;
- System safety oversight;
- Project risk assessment;
- Review and acceptance of final design;
- Construction management and inspection;
- Railroad coordination;
- Review and log shop drawings;
- Monitor construction schedule and budget;
- Monitor construction adherence to project requirements;
- Witness testing and commissioning of the project;
- Technical Studies

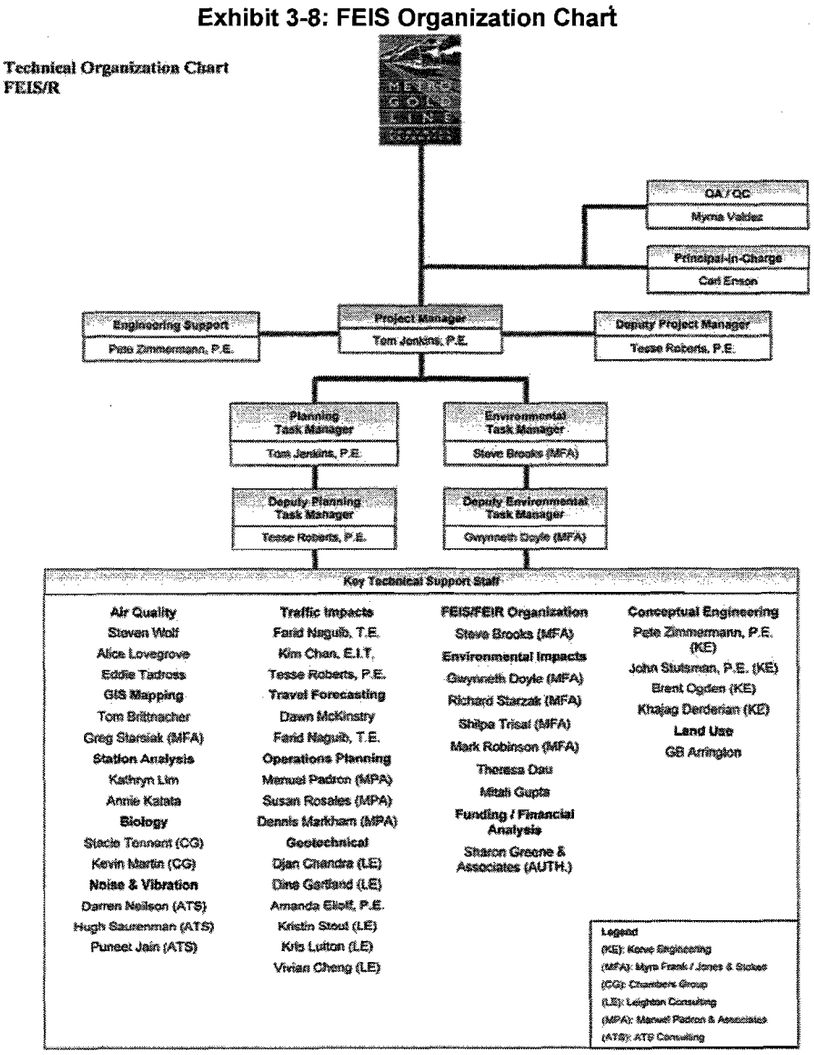
3.5.2 Final Environmental Impact Statement/Report Consultant

Parsons Brinkerhoff Quade & Douglas, Inc. is completing the Final Environmental Impact Statement/Report (FEIS/FEIR), satisfying both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). In addition, their efforts include:

- Developing the FTA Application to enter into Preliminary Engineering and Final Design;
- Developing the Before & After Study;
- Developing the Real Estate Acquisition Plan

The organization chart for the FEIS Consultant is illustrated in Exhibit 3-6 below.

Exhibit 3-8: FEIS Organization Chart



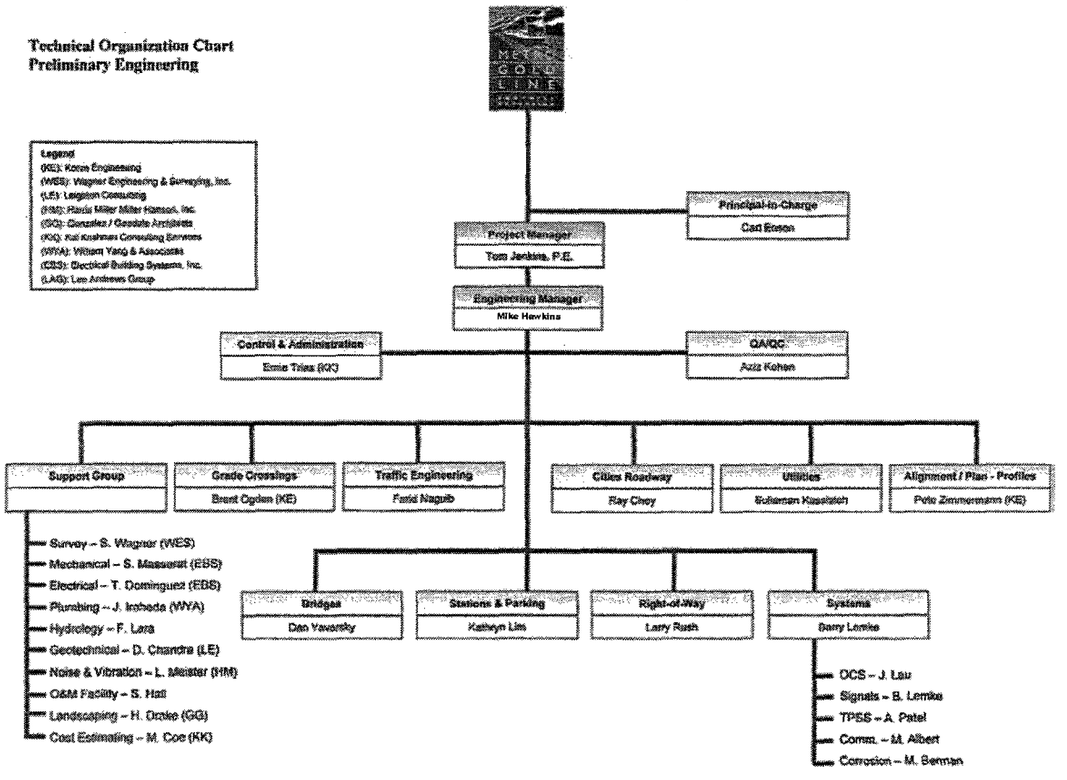
3.5.3 Preliminary Engineering Consultant

The Preliminary Engineering (PE) Consultant, Parsons Brinkerhoff Quade & Douglas, Inc., is responsible for developing a level of engineering to mitigate environmental impacts, to establish baseline schedules and costs, and to facilitate a Design/Build Bid package. As part of their scope, the PE Consultant is responsible for the following:

- Preliminary design drawings of all facilities on controlled photogrammetric base mapping;
- Alignment Right-of-Way, existing utility, plan and profile, and drainage drawings;
- Station, platform, landscaping and parking lot/structure plans;
- Structural design drawings;
- Grade crossing plans and traffic engineering;
- Survey and geotechnical investigations;

The organization chart for the PE Consultant is illustrated in Exhibit 3-7 below.

Exhibit 3-9: PE Organization Chart



3.5.4 Quality Assurance Consultant

Once the project has received a Record of Decision, an independent Consultant will manage and approve the maintenance of the Authority's Quality Assurance Plan and ensure that it is properly implemented. The Quality Assurance Consultant will be responsible for maintenance of the Authority's Quality Assurance Plan through Design/Build procurement, final design, construction and testing and for audit of compliance with the plan.

The Quality Assurance Consultant will also assist the Authority's Program Management Consultant for the review and audit of the Design/Build Contractors for development, maintenance and implementation of their Quality Assurance Plan during final design, construction and testing.

3.5.5 Specialized Professional Services

The Authority shall solicit support of other professional and specialty services, such as those listed below, as they become necessary and as indicated in the Master Schedule.

- Contracts – Terms & Conditions
- Real Estate Acquisition
- Hazardous Materials

3.5.6 Design/Build Contractor

The Authority plans to develop the project into final design and construction through several design/build contracts. Under this procurement method, many of the services and duties that would have been performed by Authority staff or consultants under a conventional final design/bid/build project are performed by the design/build contractors. Therefore, as part of their scope, the design/build contractors are responsible for the following:

- Prepare detailed design and construction plans;
- Prepare Project Management Plan that adheres to FTA approved schedule and budget;
- Implement design criteria;
- Prepare required environmental documentation;
- Establish detailed alignment and station arrangement;
- Prepare working drawings for supply of equipment, installation, and construction;
- Prepare methods for handling hazardous waste and utilities;
- Prepare final specifications;
- Provide quality assurance and quality control;
- Provide all design support for the Authority to acquire all permits;
- Provide all construction surveys;
- Provide for relocation of all utilities;
- Construct fixed facilities and systems;

- Supervise and inspect construction;
- Maintain record documents;
- Prepare as-built drawings;
- Provide for system safety, and integrity;
- Provide integrated testing and commissioning;
- Provide O&M procedures and manuals and training for all fixed facilities and systems.

3.5.7 Artists

The Authority, together with the respective cities through the Station Design and Art Review (SDAR) committees (refer to Section 3.6.4) have selected station and alignment artists and developed preliminary art schemes. The Authority intends for the artists to be subcontracted to the Design/Build Contractor for final design and construction.

3.6 COMMITTEES

The project will receive support from various committees, set up to provide specialist support and/or interfaces with outside agencies and jurisdictional authorities. A summary of these committees and their relationship with the project organization are described below.

3.6.1 Configuration & Change Control Committee

As described in Section 4.1, the Configuration & Change Control Committee is responsible for the review and recommendation/approval of project changes. The committee is chaired by the CEO, with membership drawn from the Authority's Project Management, Procurement, and Finance Departments.

3.6.2 Fire/Life Safety Committee

As described in Section 3.4.3, the Authority's Safety & Security Manager will chair the Fire/Life Safety Committee (F/LSC). This committee will be a project-specific form of LACMTA's existing fire/life safety committee. This committee comprises representatives of LACMTA's safety and security personnel, and jurisdictional emergency responders. Meetings are generally attended by other project personnel on an as-needed basis, including the Programs Management Director, Systems Engineering Manager, and the design/build contractor.

The purpose of the F/LSC is; to provide oversight of the project from a fire and life-safety perspective; to provide a forum for jurisdictional safety and security personnel to provide input to the project design and development, and to review, interpret and grant waivers to LACMTA Fire/Life Safety design criteria. The F/LSC maintains and tracks a list of project Fire and Life Safety issues.

The F/LSC interfaces with the project's organization through the Authority's Safety and Security Manager. The Safety & Security Manager will review and monitor implementation of fire and life safety decisions and actions and report these back to the F/LSC.

3.6.3 Rail Activation Group

As described in Section 3.1.2, the LACMTA will lead the Rail Activation Group (RAG). This committee comprises representatives of LACMTA's operations and maintenance personnel, the design/build contractor and Authority staff. Meetings are generally attended by project personnel on an as-needed basis, including the Programs Management Director (permanent member), Systems Engineering Manager and Safety & Security Manager.

The purpose of the RAG is to provide a forum for discussion, planning and implementation of operations-related activities for the project. Specifically, the RAG; plans and implements operations and maintenance support to integrated testing; plans and implements pre-revenue operations and testing, including emergency drills; and reviews the readiness of the project for integrated testing, pre-revenue operations and revenue operations. The organization and duties of the RAG are more fully described in the Integrated Testing and Start-Up Plan.

3.6.4 Station Design and Art Review Committees

A Station Design and Art Review (SDAR) committee was formed for each of the corridor cities during the FEIS/R project development stage to provide city input to the architectural design and inclusion of art in station designs. A separate SDAR committee has also been formed for selection and review of the alignment artist. The alignment artist will provide artistic input along the whole alignment.

The SDAR committees participate in station artist selection and oversees and reviews the art design. The SDAR committees also provide input to the Authority on station architectural elements, including color and canopy layout. The committees comprise persons selected by each of the corridor cities. Authority representation is provided through the Authority's Project Engineer, who reports to the Facilities Manager for incorporation of SDAR input and direction to the project design and construction.

4 PROJECT MANAGEMENT CONTROL SYSTEMS

This section describes the Authority's control systems and procedures, implemented to manage the project. The primary purpose of the Authority's control systems are to maintain the project to budget and schedule. This is achieved by implementing structured procedures for the management, control, and monitoring of the project and by implementing structured procedures for the early identification, analysis and resolution of problems as they arise.

4.1 CONFIGURATION AND CHANGE CONTROL

Prior to FTA approval to enter final design and construction, the project is subject to continual development and refined definition. Significant milestones in project development and definition, requiring review of project configuration and change include; FTA approval to enter Preliminary Engineering; FTA approval of FEIS; FTA approval of Record of Decision; completion of Preliminary Engineering; FTA application to enter final design; and Full Funding Grant Application. Each of these stages defines, or requires definition of, the project and sets the project budget and schedule. During this stage in project development, project configuration and change control will be discussed at the weekly project staff meetings. The Chief Project Officer will take the lead in reviewing and approving project changes.

Once the FTA has granted approval to enter final design and construction, Configuration and Change Control is provided through a number of control and monitoring systems within the Authority's organization as described below, with primary control being through the Authority's Configuration Management and Change Control Committee.

4.1.1 Project Design and Construction

Project design is mainly defined through two documents; the LACMTA Design Criteria; and the Design/Build Contract Documents (of which, LACMTA Design Criteria is a part).

Design changes that impact LACMTA Design Criteria are subject to a review and approval process as specified in Section 10.1.

Changes to Design/Build Contract Documents are subject to review of the Authority's Configuration Management and Change Control Committee. Refer to Section 4.1.3.

4.1.2 Project Schedule

Project schedule is monitored and controlled as described in Section 4.2. Any significant changes to project schedule will be identified by the Authority's Scheduler or the Design/Build Contractor(s) and will be subjected to review by the Authority's Configuration Management and Change Control Committee.

4.1.3 Configuration Management and Change Control Committee

The requirements and procedures for the Configuration Management and Change Control Committee are specified in the Authority's Contract Change Control Procedures for Consultant and Design/Build contracts.

When a project change is identified, the Authority's Contract Administrator will request an internal scoping meeting to identify and define the scope of the change. This meeting will include the Engineering and/or Construction Manager as appropriate. The Contract Administrator will also

conduct a cost and time impact assessment, with the assistance of Programs Management department staff.

If the project change has an aggregate or potential value in excess of $25,000, the change will be subject to the review of the Configuration Management and Change Control Committee. The Configuration Management and Change Control Committee comprises the Chief Executive Officer (chair), Chief Project Officer, Construction Manager, Engineering Manager, Contract Administrator, Director of Finance, and the Scheduler.

The Configuration Management and Change Control Committee responsibilities include:

- Review Change Orders and Directive Letters that have an aggregate or potential value in excess of $25,000;
- Assess Proposed Change Orders for adherence with the Change Control Policy;
- Review modifications to the schedule;
- Review changes up to the amount specified in the project budget for contract modifications;
- Recommend Change Orders over $100,000 to the Construction Committee of the Board of Directors for approval.

4.2 SCHEDULE MANAGEMENT

The ability to rapidly move the Project forward depends on the level of effort expended on planning and prioritizing a well defined and managed schedule. The Authority has developed a Master Project Schedule, identifying all tasks and their dependencies through to project completion. The Authority will initially estimate the activities and schedule for final design and construction. Once Design/Build contracts are let, the relevant schedule sub-nets will be replaced by the approved contractor's Baseline schedule.

The successful on-time completion of the Project depends on the ability of the Project participants to address in a timely manner the delays, both Critical and Non-Critical, as described below. By highlighting work sequences that experience an increasing depletion of positive float, potential delay-causing issues can be managed aggressively. The Authority's participation in Project Schedule update meetings will encourage open discussion regarding problem areas on the Project as demonstrated by the Project Schedule.

4.2.1 Scheduling System

The project will use the Critical Path Method (CPM) of scheduling. The Authority will include requirements in all professional services and design/build contracts to provide and manage a contract schedule. Professional services contracts will include scheduled deadlines for critical deliverables.

Design/Build contracts will include scheduled requirements for substantial completion and project completion, as well as applicable intermediate milestones and constraints. Typical intermediate milestones include completion of contract elements for coordination with other contracts. Typical project constraints include restrictions on access to acquired property or access to parts of the project requiring construction by other contractors. Design/Build contractors will be required to submit a baseline schedule that will be folded into the Authority's Master Schedule. Thereafter, the Contractor(s) will be required to provide monthly updates (with the invoice), together with

analysis of schedule float and any slippage. The contractor's schedule will be discussed with project management staff at regular project management meetings.

Contractor's baseline schedules and updates will be reviewed by the Authority's Scheduler, with the assistance of relevant Project Management Department staff, for contract compliance; sufficient activities; realistic durations; correct logic relationships; and constructability. The Authority's scheduler will review Contractor schedules and updates to monitor trends in activity slippage, even if such trends are not on the current critical path, in order to forecast and anticipate problems at the earliest opportunity so that maximum time is available to mitigate.

Approved contractor Baseline schedules and updates will be incorporated into the Authority's Master Schedule. The Master Schedule status and progress will be presented by the Authority's scheduler and reviewed by Authority staff at the weekly staff meetings. This forum will provide an opportunity to forecast and discuss schedule issues and provide resolution. In the event that a schedule conflict is anticipated that will impact a project milestone or cost, then this will be referred to the Authority's Configuration & Change Control Committee for further analysis and recommendations.

4.2.2 Critical Delays

Should an update of the Project Schedule report negative float, immediate action will be taken to recover the lost float and bring the Project completion date back on schedule. The Authority will direct the consultants or contractors to develop work to re-sequence or prioritize alternatives. Analyses of resource and productivity data collected from previous schedule updates will be used to review projected durations of similar activities.

If necessary, a recovery plan will be developed by the consultant or contractor and monitored by the Authority's Scheduler.

4.2.3 Non-Critical Delays

Non-critical delays will be encountered as a result of typical project dynamics. Consumption of positive float will be monitored with each month's schedule update. Excessive float consumption will be reported to highlight potentially delaying issues or underestimated durations.

4.3 DESIGN REVIEW

Design review occurs at fixed, scheduled stages in project development in order to monitor the development of the design. The primary purpose of design review is to verify the following:

- Compliance with fire/life safety and other applicable safety requirements and standards;
- Compliance with contract, design criteria, and referenced/applicable standards and codes;
- Compliance with environmental documents;
- Coordination with other disciplines and other contracts;
- Compliance with requirements for coordination and constructability with on-going rail operations as well as coordination with City and Caltrans requirements for street/lane closures;
- Compliance with Authority Agreements and permits;
- Design quality.

4.3.1 Design Review and Coordination

At all stages in design, design packages delivered to the Authority are received and logged by the Document Control Manager (refer to Section 4.9) and their distribution is agreed with the Engineering Manager. At this time, the lead Authority person for the review is assigned. All submittals are reviewed to determine which persons within the Authority, as well as which third parties, should receive a copy of the submittal.

The review period for submittals is set in the contract and in third party agreements. Once comments have been received, the assigned Authority lead reviewer will collate; review; and, if necessary, discuss and accept or reject comments before forwarding to the Document Control Manager for forwarding to the contractor/consultant for action and response.

During Preliminary Engineering, submittals are generally accepted without comment, accepted with comment, or rejected. During final design, a more formal acceptance assignment will be assigned in accordance with the Design/Build Contract. Submittal status will be tracked, including rejected submittals that are assigned for resubmittal.

4.3.2 Design Review During Preliminary Engineering and Design/Build Procurement

PE design documents will receive two review stages; Pre-Final (when the design is substantially complete); and Final (final PE documents, reviewed mainly to confirm incorporation of pre-final comments).

The Design/Build contract documents will receive one formal review. Draft documents will be issued to potential contractors and to third parties for a period of industry review.

During the design/build bidding cycle, contract documents will be forwarded to certain third parties (incl. LACMTA and corridor cities), the design/build bidders and other registered contract document holders. When comments or questions are received from registered document holders, these are logged, reviewed, answered and, if necessary, contract addenda issued to all document holders.

4.3.3 Design Review During Final Design

Final design documents will receive several review stages, depending upon the nature of the submittal:

- Engineering design submittals typically are reviewed at the preliminary (60%), pre-final (90%), final (100%) and "Issued For Construction" design levels.
- Other design and project control documents, such as analyses, procedures, plans, and reports typically are provided in Draft and Final format.
- Construction submittals are generally issued only once.
- Manuals are generally reviewed at the Draft and Final stage.
- As-Built design documents are generally reviewed once.
- Other submittals receive single or multiple reviews as required by the contract.

During the final design stage, the management, control and on-time performance of design review is critical to project progress. The designated Authority lead reviewer is responsible for maintaining progress and controlling comments that are not in accordance with the contract.

4.4 QUALITY CONTROL

Quality control is provided through the procedures set out in the Authority's Quality Assurance Plan. Refer to Section 15 for details of the Authority's Quality Program.

4.5 REPORTING

The Authority's CPO issues a bi-monthly report to its Board members identifying progress made, issues, and potential delays followed by schedule mitigation recommendations and the financial state of the Project. In addition, the Authority will submit these bi-monthly submissions of project budget and project schedule to the FTA.

4.6 COST CONTROL

The cost control system provides the mechanism and procedures for managing the budget, cost estimates, expenditure and cost trends for the project. Included in the cost control is the management of budgetary and actual costs as well as management of project contingency. Critical to this is the early prediction of negative trends in expenditure and the planning of mitigation.

Cost Control is a multi-tier function with the Authority's organization, with the aim of emphasizing the importance of cost management throughout the project organization:

i) Primary responsibility for cost management lies with the Finance Department. Here, the project budget and major cost element budgets, including contingency, are managed and monitored.

ii) The Procurement Department is responsible for managing individual contracts to budget, including cost control of contract changes.

iii) The Project Management Department takes the lead responsibility for early identification of potential impacts to contract cost, including scope changes, scope gaps, disputes, and delay.

4.6.1 Capital Project Accounting System (CPAS)

Upon receipt of executed funding agreements from the FTA and other funding sources, the Director of Finance will assign specific cost objective codes for each funding source into the Authority's CPAS. Assigning individual codes will require the Authority to provide specific expenditure data for each funding source and allow all parties to evaluate progress against costs. To achieve this, the Director of Finance will create task codes with budgets structured in such a way as to allow efficient management of the Project.

CPAS is the primary tool for budget control and monitoring for the project and will form the primary financial input to project progress reports to the Authority's Board and to the FTA.

Prior to making modifications to CPAS, the Director of Finance will process required technical amendments or other funding source actions. As a financial fail-safe procedure, the CPAS

system will not allow budgets to be transferred away from obligated amounts (purchase orders, etc.).

4.6.2 Cost Estimation

Capital cost and expenditure curve estimates for the project will be prepared at the FEIS and PE levels and will be used as the basis for project funding. FEIS and PE estimates will be prepared by the FEIS and PE consultants under the direction of the Authority's Facilities Manager. Capital costs estimates will include assignment of contingencies. Contingency percentages will be assigned to different project elements according to assessment of risk.

Costs for professional services contracts will be estimated by the Project Management Department and used as the basis for negotiation of final cost and scope.

During final design and construction, the Procurement Department's Estimator will provide independent cost estimates, with the assistance of the Facilities and Systems Engineering Managers. These independent estimates will be used as the basis for negotiation of final cost and scope.

4.6.3 Professional Services Agreements

To initiate professional services agreements, the following financial control steps shall be taken:

(1) The leads of the various departments shall prepare a purchase requisition and an estimated cost for the goods or services required and forward them to the Director of Finance. The purchase requisition identifies all necessary Project account code data.

(2) Upon approval by Director of Finance, a purchase order for approval by the CEO shall then be issued in the Authority's Purchasing/Accounts Payable/Materials Management System (PAPMM). The purchase order establishes the interface with the Authority's general ledger systems.

(3) Execution of the purchase order signals the start of work and creates the compensation mechanism for the same. Once invoices are posted on the general ledger system, Accounting prepares an application for reimbursement, then forwards it to the funding agency. Project Accounting is the responsibility of the Authority's Director of Finance. Accounts Payable is the responsibility of the Finance Department, as are properly documented authorizations for contract payments. Depending on the specific professional services being purchased, the Authority reserves the right to utilize any of the following contract mechanisms: cost-plus-fixed-fee, cost-plus-incentive-fee type of contracts, time and materials, or lump sum.

4.6.4 Force Account Agreements

Force Account Agreements normally pertain to those agreements formed with public and private utility companies, particularly water, electric, communications, and gas. In addition, the Authority anticipates force account agreements for flagging services for construction adjacent to or on the operational freight track and the existing Phase 1 Gold Line. Force Account services will be managed by a Force Account Administrator within the Procurement Department.

Prior to the completion of Design/Build procurement, the Authority will develop and negotiate Master Cooperative Agreements with each of the entities as a means to identify future interfaces and associated costs.

4.7 INVOICE CONTROL PROCEDURES

To initiate invoice payment, a purchase order, contract, or work authorization must be prepared and entered into the Authority's accounts payable system. Invoices received will be reviewed and recommended for payment by the appropriate Department Manger and approved by the Director of Finance. Upon approval of an invoice by the Director of Finance, a receipting form indicating the amount being approved and status of the work shall be completed and forwarded to Accounts Payable. All invoices in excess of $50,000 must be hand signed by the responsible Department Manager and the Director of Finance before payment from the Accounts Payable.

Upon receipt of an Invoice and Receipting Form, Accounts Payable shall issue payment after taking the following actions:

- Checking the invoice against the previously created purchase order
- Paying the invoice and reducing purchase order balance by the check amount
- Posting the transaction to Authority's general ledger system
- Preparing and forwarding the application for reimbursement to those Funding Sources

Within 30 days after receipt by the Authority of each invoice, the Authority shall pay the consultant or contractor in the amount of the approved invoice. All invoice modifications, if any, shall be forwarded back to the consultant or contractor to facilitate its cost control functions.

4.8 CONTRACT MODIFICATION CONTROL

Changes in project costs may occur due to a number of causes. All revisions to a consultant's or contractor's scope of work shall be recorded and monitored to immediately predict cost implications to the Project's budget.

All such revisions shall be subdivided into three separate categories for monitoring and tracking purposes:

(1) Approved Change Orders: Contract changes which have been approved by the CEO.
(2) Pending Change Orders: Contract changes, which have been approved by the CEO but not yet executed.
(3) Potential Change Orders: Possible changes to the contract which have been brought to the attention of the CEO.

Whether initiated by the Authority, the consultants/contractors, or those providing Force Account services, the CEO or his/her designee shall analyze each Change Order request and confirm that the work required represents a change to the existing contract. Upon conclusion of the review, the CEO or his/her designee shall forward recommendations to the Contracting Officer to approve or deny the proposed change.

The formal process by which changes are identified, prepared, reviewed, executed and tracked, is detailed in the Authority's Change Control procedures. The general philosophy behind the Authority's approach to contract scope control is summarized in the following paragraphs.

4.8.1 Change Orders

The Change Control Procedure defines the process by which changes to the work performed by Authority Consultants and contractors are initiated, documented, reviewed, and executed.

The change process is intended to control contract amendments that may affect, but are not limited to, the following:

1. Scope of work
2. Schedule
3. Contract price
4. Labor hours required to complete the work
5. Other terms and conditions of the contract

All proposed contract amendments are subject to a control process to ensure that changes are necessary, changes are outside of the contractual requirements, the scope and budget are reasonable for the work proposed, and to ensure that all Authority objectives remain unchanged.

An electronic contract Amendment Log will be maintained to track the type of Amendment, the status of all proposed Amendments, the cost impacts, the contract terms affected, and the final disposition of the Amendment.

The change control processes for Authority-initiated amendments and consultant/contractor-initiated amendments follow these general steps:

1. Notice of Amendment
2. Identification of scope
3. Independent Authority assessment of scope, budget and schedule
4. Submittal of cost and schedule proposal
5. Negotiations
6. Internal Amendment review and approval
7. For Amendments over $250,000, Authority Board of Directors approval with the recommendation of the Construction and/or Finance Committee
8. Final disposition of Amendment
9. Amendment posting and file closeout

4.8.2 Cost Impacts

Change Orders increasing the cost of a contract will not necessarily cause a revision in the budget. The CPO, in coordination with his staff, shall be responsible for determining the extent and impact of the Change Order to the respective budget items and to make the appropriate revisions to CPAS.

4.8.3 Schedule Impacts

Change Order requests submitted by a Consultant or contractor must be accompanied by the estimated time needed to accomplish the work, if any additional time is required. It should be noted that Change Orders causing an increase in the duration of an "element" of a contract might not necessarily affect the duration of the "overall" contract. Change Orders involving contract extensions require the following actions:

- The Chief Project Officer or responsible Department Manager shall review the Change Order request to validate the need for a revision in the contract.

- Extensions of time to complete the particular contract element will be granted, if warranted, by the CEO.
- If the work being revised does not affect duration on the contract's critical path, no extension of time will be granted to complete the overall contract.

The Change Order documentation shall include a record of negotiations, a detailed estimate, the Consultant's original and final negotiated proposals, an analysis of the costs, and a statement from the Chief Project Officer or responsible Department Manager that the price is fair and reasonable.

4.9 DOCUMENT CONTROL

Document control is the responsibility of the Project Controls Department and specifically the Document Control Manager. The Authority's Document Control system for the project is based upon the Authority's existing Document Control system that was successfully used during Final Engineering and Construction for Phase I of the Gold Line. However, once the Project moves towards Final Engineering and Construction, an Internet web site for electronic distribution may be incorporated to reduce paper usage and to expedite the submittal distribution process.

The Document Control system is specified in the Authority's Document Control Plan. The plan will be maintained by the Document Control Manager and approved by the Project Controls Manager.

The Document Control system is intended to provide consistent document management across all contracts, including all contract deliverables and all project correspondence. The Document Control system establishes an efficient and effective document control, recording and retrieval system, including submittals; agreements; contracts; RFPs; bids & proposals; certified payroll; DBE reports; property acquisitions, leases and easements; permits; change-orders, change notices and requests for change; requests for information; schedules; budgets and cost estimates; plan drawings and specifications; test procedures and reports; plans and procedures; general and contract correspondence; grants/funding information; construction and progress reports; meeting minutes; contractor claims; and disputes.

5 HUMAN RESOURCES AND LABOR RELATIONS

This section describes the Authority's organization and procedures for human resources and labor relations. In addition to the Authority's policies, procedures and state requirements, Federal Funding of the Foothill Extension project requires certain federal requirements, including the incorporation of Disadvantaged Business Enterprise (DBE) and prevailing wage in Authority contracts.

5.1 STATUTORY AND REGULATORY REQUIREMENTS

In implementing the Project, the Authority shall follow all applicable State and Federal regulations and internal procedures relating to human resources and labor relations. All such procedures are detailed in the Authority's Corporate-Wide Policies and Procedures Manual, which are continually updated and available on file at the offices of the Authority. The areas covered in the policy manual directly related to Human Resources and Labor Relations are summarized below.

- Staffing
- Training
- Equal Employment Opportunities (EEO) Program
- Disadvantage Business Enterprises (DBE) Program

5.2 AUTHORITY ORGANIZATION

The Authority is a small, single purpose organization (to design and construction the Pasadena Gold Line). Therefore, a large Human Resources and Labor Relations organization of not necessary. The Civil Rights Officer is responsible to the CEO for Human Resources and Labor Relations policies and procedures, assisted by the Human Resources Manager.

Monitoring and control of Design/Build Contractors, including DBE and prevailing wage, is lead by the Procurement Department with assistance from the Civil Rights Officer.

5.3 STAFFING

5.3.1 Internal Staffing

The Authority will undertake responsibility for direct management of its staff. Should the need arise, additional staff can be hired to support project management, subject to budget department review, approval, and compliance with internal hiring practices. If additional staff needs are identified, the vacancies will be filled using the normal Authority process. The recruitment of qualified candidates outside of the Authority is expected after it has been determined that there is no probability of finding a qualified in-house candidate.

5.3.2 External Staffing

Technical and/or management assistance shall be augmented through the use of Consultants retained by the Authority to provide such assistance on an as-needed basis. Section 3.5 describes the Authority's current plans for staff augmentation through consultants. Consulting teams providing services to the Authority will do so under well-defined contractual agreements. However, through their respective contracts, each Consultant could be called upon to provide additional assistance if requested by the CEO, CPO or his/her designee.

5.4 TRAINING

The Authority staff will be responsible for managing the Project. As such, the staff will need wide-ranging educational backgrounds with significant work experience related to the needs of the Project. In continuance of maintaining and enhancing the background of its staff, Authority will consider providing training programs in the following areas:

5.4.1 Project Management – Technical

The Authority will allow employees to take advantage of numerous courses offered by various companies and agencies. Staff are encouraged to attend courses and seminars covering such topics as project management, computer scheduling, database management, environmental law, quality assurance auditing, and other specialized courses or seminars relating to their project responsibilities.

5.4.2 Safety Training

Once the Project advances into Construction, all construction staff must attend an approved site safety training seminar or course to become familiar with general industry and construction industry safety standards as required by CAL OSHA. In addition, all staff working on or near an active track must attend an approved site safety training seminar or course to become familiar with safety regulations for working in active railroad property.

5.4.3 Apprentices and Trainees

The following apprentice and trainee requirements will be included in construction contracts:

Apprentices will be permitted to work at less than the predetermined rate for the Work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau. The allowable ratio of apprentices to journeymen on the job Site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the Work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by

the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job Site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the Work performed until an acceptable program is approved.

5.5 EQUAL EMPLOYMENT OPPORTUNITIES (EEO)

The Authority is fully committed to assuring compliance with equal employment opportunity requirements for the Project. All employment practices shall be in accordance with the applicable Federal and California Equal Opportunity laws and regulations. The Authority's Human Resources Manager shall participate in all internal hiring activities and monitor enforcement of these regulations.

Every effort shall be made to recruit applicants from underutilized groups to fill any position. However, there is no quota system, and a needed position will not be held vacant if a reasonable recruiting effort fails to identify a fully qualified candidate from such groups.

5.6 DISADVANTAGED BUSINESS ENTERPRISES (DBE)

To the extent permitted by State and Federal law, the Authority is firmly committed to encouraging participation of disadvantaged business enterprises (DBE) on all outside professional service procurements. DBE participation shall be monitored by the Authority. Design activities to be undertaken require prior experience and a technically qualified staff to fully support any consulting or contracting role. If the type of work is such that no DBE participation is possible, the best efforts provisions will be waived for that specialty only.

The Authority's Civil Rights Officer will provide assistance to bidders and contractors to comply with DBE requirements and to connect with DBE firms capable of providing service to the project. Contractors shall provide continued monitoring and reporting of DBE status to the Authority. Compliance shall be monitored by the Procurement Department.

5.7 WAGE RATES AND CLASSIFICATIONS

Wage rates for Authority personnel are set by the Authority's internal polices and procedures. Compensation rates for non-Authority personnel are established in the respective consultant contracts as approved by the CEO and Board of Directors.

For construction contracts, the Authority will include requirements for the contractor and all subcontractors to comply with and implement federal prevailing wage (Davis-Bacon) rates as applicable. The Authority's Labor Compliance Manager will provide assistance to contractors to achieve and maintain compliance and will monitor contractors for continued compliance.

Wage and hour requirements for Authority employees, consultants and construction contractors shall be in accordance with Federal Minimum Wages, Fair Labor Standards Act, California Labor Codes, Federal and State Prevailing Wage codes, and other applicable regulations.

6 RISK MANAGEMENT AND INSURANCE

6.1 RISK MANAGEMENT PLAN

The Authority will adopt a Risk Management Plan to help identify and mitigate/eliminate risks that could potentially jeopardize the success of the Foothill Extension Project. Certain risks will be managed by providing a reasonable level of contingency allowance, either by schedule time or budgeted cost, while others will be offset, in part or in whole, by an expanded program of insurance. Furthermore, there are risks which can be reduced simply by the adoption and implementation of good policies, procedures, management practices, control and procurement. The Authority will draw upon the expertise of its staff members, consultants, and contractors, who are well qualified for their intended role on the Project, to execute this Plan, that will include the following elements:

- Risk Identification & Evaluation
- Risk Register Management
- Risk Mitigation and Closeout

The Risk Manager, under direction of the Project Controls Manager, will be responsible for development of the Risk Management Plan and will oversee its execution.

6.1.1 Risk Identification and Evaluation

The Risk Manager will organize Risk Workshops, drawing upon the expertise of Authority staff, to develop a list of project risks and to analyze and determine their probabilities and severities for the project. The following types of risks and how they will be categorized (in terms of severity) are summarized Exhibit 6-1 below.

Exhibit 6-1: Risk Identification and Categorization Chart

RISK IDENTIFICATION & CATEGORIZATION		← Severity →		
Risk Elements	**Probability***	**Low**	**Med**	**High**
Project Feasibility				
Funding				
Engineering				
Real Estate				
Operability				
Safety/Security				
Type of Contracts				
Local Participation				
Meeting Regulatory Requirements				
Loss or Damages				
***Probability Remote - Possible - Probable**				

To gain a perspective on those elements believed to be levels of various levels of risk, a categorization utilizing the "Probability/Severity" matrix, provided in Exhibit 6-2, will be applied.

Exhibit 6-2: Risk Probability/Severity Matrix

PROBABILITY/SEVERITY MATRIX			
PROBABILITY	SEVERITY		
	Low	Med	High
Remote	A	A	A
Possible	B	B	
Probable	B		

6.1.2 Risk Register Management

Having made the initial assessment of project risks, the Risk Manager will generate a Risk Register to record and monitor the status, mitigation and close-out of risk. This register will be issued on a quarterly basis to inform the project team of risk status. Should any Element receive a "C" categorization, it must be brought immediately to the attention of the CPO and key staff as a means to immediately mitigate to a level of B or A. An example of how the summary will appear is provided in Exhibit 6-3 below.

Exhibit 6-3: Risk Register

EXAMPLE - QUARTERLY SUMMARY OF RISK ELEMENTS MATRIX	Probability/Severity
Project Feasibility	A
Funding	B
Engineering	A
Utility Issues/Relocations	A
Third Party Issues	A
Real Estate	A
Operability (MTA)	A
Safety/Security	B
Type of Contracts	B
Local Participation	B
Meeting Regulatory Requirements	B
Loss of Damages	A

6.1.3 Risk Mitigation and Closeout

Because each of the Risk Elements are individual in character, a separate description and means to mitigate/eliminate each will be provided in a summary narrative providing the following:

- Risk Element Description
- Timeframe when Risk Element must be addressed
- Responsible Party/Parties to address Risk Element
- Severity and Consequence of the Risk Element (A, B, C)
  - Costs
  - Schedule
  - Political and/or Schedule
- Forces or Dependencies impacting Risk Element
- Call List (Alerting appropriate personnel/Agencies when Category C occurs)
- Risk Control & Mitigation Techniques that can be applied

6.1.4 Timeframe

The Risk Management Plan will be developed prior to Design/Build procurement and will be updated annually or sooner, should it be warranted. However, the "Summary of Risk Matrix" will be updated quarterly as a means to flag any element that demonstrates a Category "C" ranking.

6.2 INSURANCE

The Authority will incorporate insurance programs and requirements on professional services and design/build contracts.

6.2.1 Professional Services Contracts

Professional Services contracts shall include the following insurance requirements:

- Commercial general liability insurance, minimum limit of $1,000,000.00 per occurrence;
- Automotive liability insurance, with minimum combined single limits coverage of $500,000.00;
- Professional liability insurance, in an amount of not less than $1,000,000 per occurrence;
- Worker's compensation insurance in the amount required by law, with an employer's liability limit of $500,000 or greater.

6.2.2 Design/Build Contracts

The Authority intends to execute an Insurance Program to provide Workers Compensation and Employers Liability insurance, General Liability insurance, Railroad Protective Liability (ISO-RIMA), and Excess Liability insurance in connection with the performance of the contract.

At this time, the Authority has not decided whether to execute some insurance policies as an Owner Controlled Insurance Program (OCIP) or a Contractor Controlled Insurance Program (CCIP). The Authority will conduct further analysis prior to Design/Build procurement to determine which arrangement will provide the best value to the project. Once an insurance program is chosen, additional details will be included in the PMP.

7 SAFETY

7.1 SAFETY IN DESIGN

The Authority's Design Consultants and Design/Build contractors shall develop their designs to be in conformance to all the applicable Federal, State, and Local safety and building codes, standards and regulations, as well as the LACMTA Fire/Life Safety Design Criteria.

During final design, the Design/Build contractor will be required to conduct additional safety analyses, including:

- Failure Modes and Effects Analysis (FMEA)
- Operating & Support Hazard Analysis (O&SHA)
- Probability Analyses

7.2 PRELIMINARY HAZARD ANALYSIS (PHA)

During Preliminary Engineering, a PHA will be conducted to identify and systematically assess conditions that potentially could affect the safe construction and operation of the transit system. The purpose of the PHA is to identify hazardous conditions that could exist, evaluate the effects of the hazards to personnel and equipment, and define designs and criteria to eliminate or control identified hazards.

The PHA will follow the guidelines of MIL-STD-882 "System Safety Program Requirements" by assigning various levels of severity to all potential hazards, from negligible to catastrophic, followed by assigning probability levels to each, as identified in Exhibit 7-1 and Exhibit 7-2 below:

Exhibit 7-1: Hazard Severity Categories

Description	Category	Definition
CATASTROPHIC	I	Death, system loss, or severe environmental damage.
CRITICAL	II	Severe injury, severe occupational illness, or minor system or environmental damage.
MARGINAL	III	Minor injury, minor occupational illness, or less than minor system or environmental damage.
NEGLIGIBLE	IV	Less than minor injury, occupational illness, or less than minor system or environmental damage.

Exhibit 7-2: Hazard Probability Levels

Description	Level	Likelihood of Occurrence
FREQUENT	A	Likely to occur frequently
PROBABLE	B	Will occur several times in the life of an item
OCCASIONAL	C	Likely to occur some time in the life of an item
REMOTE	D	Unlikely, but possible to occur in the life of an item

Description	Level	Likelihood of Occurrence
IMPROBABLE	E	So unlikely, it can be assumed occurrence may not be experienced

7.3 SAFETY AND SECURITY MANAGEMENT PLAN

The Authority will develop a Safety and Security Management Plan (SSMP) during Preliminary Engineering. The SSMP documents the safety and security requirements for the Foothill Extension to assure it will be designed, constructed and operated safely and securely. The SSMP identifies, describes, schedules and assigns responsibilities for safety and security tasks, which are to be accomplished throughout the Projects development.

The SSMP includes such tasks as:

- Identifying Design Codes, Regulations, and Guidelines
- Conducting Safety / Security Audits
- Developing Rules and Procedures
- Establishing Certification Programs
- Developing Training Programs

The SSMP will be prepared in accordance with the requirements of the California Public Utilities Commission (CPUC) and FTA guidelines. In addition, the American Public Transit Association (APTA) "Manual for the Development of Rail Transit System Safety Program Plans" shall be used as guidance in preparing the plan.

The plan will be developed as a joint effort between the Authority and the LACMTA, who will eventually receive and operate the Foothill Extension once construction is complete, and will comprise the following sections:

7.3.1 Project Background and System Description

This section will provide a brief description of the project, including from a safety and security perspective. In addition, this section will describe the contracting philosophy for the project and the overall responsibilities of the project participants.

7.3.2 SSMP Purpose

This section will describe the purpose, scope, goals and objectives of the SSMP.

7.3.3 Approach To Safety and Security Responsibilities

This section will describe the responsibilities of the Authority, the LACMTA and Design/Build Contractors with respect to Safety and Security.

7.3.4 Hazard Management

This section will provide requirements and procedures for hazard identification, categorization and resolution.

7.3.5 Approach To Design Criteria

This section will provide requirements and procedures for incorporation, and management of safety and security in project design.

7.3.6 Verification and Audit Program

This section will provide requirements and procedures for verification and audit of safety and security in the project design and construction. This shall include; verification; safety certification program interfaces & process; identification of safety requirements; documentation of the review and approval process; issuing permits and/or certificates; safety review committee; compliance certification; safety management assessment process; audit responsibility; audit reporting; external safety audits; assessment objectives and techniques; and follow-up / action plans.

7.3.7 Construction Safety Management Activities

This section will provide the requirements for construction safety

7.3.8 Implementation Schedule for Meeting State Safety Oversight Requirements and Approvals

This section will provide the schedule and requirements for meeting State Safety (CPUC) requirements.

7.4 SAFETY CERTIFICATION

The Authority will require Design/Build contractors to develop and implement a Safety Certification program, in compliance with CPUC General Orders. The Safety Certification program shall include a Safety Certification Plan to identify certifiable elements of the project and to describe the contractor's organization and plan to certify the safety elements of the project within the contractor's scope. The contractor shall complete and submit design and construction safety certification for certifiable elements of the contract. During Preliminary Engineering, the Authority will develop a Safety Certification Plan to describe the overall program and responsibilities.

In addition to the design/build contracts, certain additional certifiable actions and elements may be completed by the Authority or the LACMTA. Once certification is complete, a Safety Certification Report will be forwarded to the CPUC for review prior to entering revenue service.

7.5 SAFETY REQUIREMENTS DURING CONSTRUCTION

Once the project moves into Construction, all construction activities shall be conducted in accordance with the Construction Safety Code as promulgated by the California Department of Labor and Industry under the authority of the Construction Safety Act, MBLSA 34:5-166 to 34:5-181. All Safety activities shall be conducted in accordance with Contractor's approved Safety plan.

Where the Construction Safety Code refers to the designation of a General Contractor for enforcing compliance with the Code, such designation shall be intended to refer to all agencies and firms performing work under the Program, including:

- Design/Build Contractor
- Subcontractors

- 3rd Party Agencies

Safety shall be a direct responsibility of all participants during the design and construction phases. Each participant is solely responsible for staying abreast of the requirements of all laws pertaining to design and construction safety, including:

- Knowledge of all applicable state and local laws, ordinances, codes, and regulations which in any manner affect the Project.
- Knowledge of all orders decrees, judgments, etc., issued by governmental bodies exercising jurisdiction over the same.

The Contract Specifications will detail the rules governing the performance of work in railroad territory. The contractor shall request, and obtain from the urban rail/railroads, all other information regarding the conduct of the contractor during construction.

The contract specifications will detail the rules governing the performance of work within public streets and highways. The contractor shall obtain from Caltrans, and from the county and cities having jurisdiction, the requirements for maintenance and protection of motor vehicle, bicycle and pedestrian traffic.

The contractor will also be responsible for preparing a safety plan and field manuals specifically geared toward the Project. The plan shall include a comprehensive listing of safety standards and the roles and responsibilities of all project participants, etc. The means to monitor and enforce safety shall be addressed as well as the procedures for evaluation and mitigation of hazardous conditions. At a minimum, the plan shall consist of the following elements:

- **Constructability Reviews** - The review of in-progress design submittals, construction submittals, working plans and construction schedules for safety considerations to reduce the hazards of concurrent operations.
- **Contractor Evaluation** - Contractor safety performance factors shall be examined to ascertain the level of the firm's commitment to safety, prior to selection for bidding.
- **Pre-Construction Review** - Review of each subcontractor's safety plan to confirm understanding and compliance with the project requirements along with the specific procedures to be utilized for enforcement.

8 RESOLUTION OF DISPUTES

8.1 DISPUTE RESOLUTION

During final design and construction, it is anticipated that disputes may occasionally arise between the Authority and its Consultants and contractors or between the Authority and third parties. Through Authority contracts and Agreements, both the Authority and the other party will assume responsibility to minimize the occurrence of disputes as follows:

- The Authority's CPO shall endeavor to define work scopes in plain and precise language that avoids the use of vague, inexact, unintelligible, or ambiguous wording.
- The Consultant shall provide its services in conformance with the scope set forth in the contract.

Disputes arising in the interpretation and intent of the work required, or in the performance of the same, shall be mediated jointly between the Authority's CPO or CEO and the Consultant's/Contractor's Program Manager or the third party's representative as applicable and as specified in the Contract or Agreement. All parties shall make every reasonable effort to resolve any disagreement as expeditiously as possible so as not to significantly infringe upon progress of the work.

Should initial efforts fail to resolve a dispute, each Contract or Agreement will provide specific remedies to advance the dispute to resolution through third parties, termination for convenience, or assigning tasks to another party, among other methods.

8.2 COOPERATING AGENCY DISPUTES

All contract documents must be compatible with the goals and objectives of the Project's cooperating cities, the LACMTA and other parties with whom the Authority has executed Agreements. To mitigate disputes, it shall be the primary responsibility of the Authority to ensure that the design and construction effort integrates the compulsory standards mandated by the cooperating agencies into mandatory documents to produce an end product that meets these standards, while achieving the desired operational objectives.

Under the guidance of the Authority's CPO, the resolution of disputes and opposing views on a variety of transportation, operations and engineering issues shall be coordinated through the designated representative of the respective agencies.

Agreements reached with the cooperating agencies will be documented in writing between the Authority and the affected agency. In lieu of formal correspondence pertaining to disputes that are small in magnitude, such agencies shall indicate their acceptance of the resolution through the approval of the plans, specifications, and other contract documents.

It is the Authority's intent to incorporate a dispute resolution process in all Master Cooperative Agreements, including but not limited to:

- Selection of a Dispute Resolution Board
- Process governing the Actions of the Board
- Feasibility of Arbitration and the process through which Arbitrators are chosen
- And other items that clearly detail the terms under which a major dispute is to be resolved

8.3 DESIGN/BUILD CONTRACTOR DISPUTES

The Authority will incorporate a dispute resolution process in all design/build contracts, including but not limited to:

- Selection of a Dispute Resolution Board
- Process governing the Actions of the Board
- Feasibility of Arbitration and the process through which Arbitrators are chosen
- And other items that clearly detail the terms under which a major dispute is to be resolved

8.4 DISPUTE RESOLUTION BOARD

As incorporated in Authority Agreements and Design/Build contracts, Dispute Resolution Boards (DRB) will be established to help resolve disputes. The DRB acts an impartial body whose primary purpose is to assist and facilitate resolution of disputes between various parties. As an impartial group, they can informally render opinions that can have the effect of predisposing the parties as to their potential for recovery given a formal DRB appeal.

The DRB, acting independently, can offer observations and opinions regarding new and pending issues. This preliminary assessment provides both parties with an early indication as to the potential outcome of the dispute. Such indications often motivate the parties to resolve the dispute through negotiations before the matter escalates to more formal forums.

9 ENVIRONMENTAL COMPLIANCE PROGRAM

9.1 FOOTHILL EXTENSION ENVIRONMENTAL COMPLIANCE

The Foothill Extension is required to comply with the laws and regulations as set forth in the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

NEPA and CEQA are similar laws with a common purpose: examining and weighing the potential environmental consequences of proposed government actions before such actions are undertaken. Meeting the requirements of these State and Federal Laws, the environmental analysis of the project alternatives requires an evaluation of the LPA's impact upon the following topics:

- Transportation
- Land Use and Planning
- Neighborhoods
- Acquisitions and Displacements
- Population Growth and Housing
- Economic and Fiscal Conditions
- Public Services and Utilities
- Visual Quality and Aesthetics
- Safety and Security
- Cultural Resources
- Air Quality
- Noise and Vibration
- Geology and Seismicity
- Hazardous Materials
- Water Resources
- Natural Resources
- Energy
- Electromagnetic Fields
- Recreation
- Demographics, Environmental Justice, and Protection of Children
- Section 4(f) Evaluation
- Construction

The FEIS/FEIR identifies environmental impacts and mitigations using NEPA and CEQA regulations and guidelines. The FEIS/FEIR will also include the commitment to implement the mitigation measures required to reduce significant impacts. In conjunction with the FEIS/FEIR,

the Authority will prepare Findings of Fact, Statement of Overriding Considerations, and a Mitigation Monitoring Program to achieve a Record of Decision and a Certified EIR.

Once the Authority certifies the FEIS/EIR and approves the project, the FTA will be requested to issue the Project a Record of Decision to move into final engineering and construction.

10 DESIGN CRITERIA AND MANAGEMENT

10.1 DESIGN CRITERIA

The Authority, with the support of the PMC, shall manage design activities to make certain that LACMTA's design criteria (listed below) are incorporated throughout preliminary engineering, final design, construction, and testing & start-up. Utilizing LACMTA criteria ensures that the Operator of the system (LACMTA) will receive a project that that meets their Operating and Maintenance standards for safe and efficient operations. The LACMTA design criteria are as follows:

- User manual
- Rail Planning Guidebook
- Adjacent Construction Design Criteria
- Design Criteria
- Directive Drawings
- Standard Drawings
- Specifications Manual
- Computer Aided Design & Drafting (CADD) Drafting Standards
- Fire/Life Safety Criteria

The LACMTA have an existing procedure for the review and approval of exceptions and waivers to their Design Criteria. The Authority, as specified in the Master Cooperative Agreement with the LACMTA, will not grant waivers or exceptions to the Design Criteria, but will process and forward waiver/exception requests to the LACMTA for consideration in accordance with LACMTA's procedures.

Exhibits 10-1 and 10-2 provide sample forms for Design Criteria and Fire/Life Safety Design Criteria waivers & exceptions respectively. Waivers and exceptions to Fire/Life Safety Design Criteria require approval of the LACMTA's Fire/Life Safety Committee.

Requests for Design Criteria waivers and exceptions will typically be generated by the Authority's Engineer staff/PMC, by the Authority's PE or FEIS/R Consultants, or by the Design/Build Contractor. Design Criteria waivers and exceptions will be reviewed by the Programs Management Director for completeness and acceptance prior to forwarding to the LACMTA for consideration. Design Criteria waivers and exceptions submitted by the Design/Build Contractor will additionally require contract modification and will be subject to the procedures specified in Section 4.8. Fire/Life Safety Design Criteria waivers and exceptions will additionally require the review of the Safety/Security Manager.

Exhibit 10-1: Design Criteria Waiver/Exception Form

Select One: ☐ **Exception** ☐ **Waiver***

Request to Deviate from Baseline Documents

Date of Request: Request No. Foothill-

ORIGINATOR	Requested By: Project #: Contract Number: Contract Phase: Project Title: Pasadena Gold Line Foothill Extension LRT Project
DEVIATION INFORMATION	**Attach relevant standard/criteria/drawing/document showing "before" and "after" proposed deviation. Specify Baseline Documents including item number to be deviated from below:** ☐ Design Baseline (drawings, specs, etc.): Specify_____ ☐ Baseline Documents: Design Criteria, Standard Specs, Standard Drawings, Specify _____ ☐ MTA Policies & Procedures: Specify_____ ☐ Other: Specify_____
REASON FOR REQUEST	**Reason For Request (Benefit or impact if not pursued.):**
IMPACTS	Does this Deviation impact Fire/Life, Safety Criteria (FL/S)? ☐ Yes ☐ No (If yes, attach FL/S Request for Special Consideration) Does this Deviation impact Third Party Administration issues? ☐ Yes ☐ No
APPROVALS	_____ John Miller, MTA Engineering Liaison Date _____ Dianne Curzon, MTA Mgr., Document Control Date _____ Ram Krishna, MTA DPM, Systems Date _____ Aspet Davidian MTA DPM, Facilities Date _____ Dennis Mori – MTA Executive Officer, Construction Project Management Division Date
SBCN	*SBCN process will be implemented upon approval of waiver. Incorporation of Change(s) into Baseline Documents: SBCN Number:_____ SBCN Approval Date:_____

Exhibit 10-2: Fire/Life Safety Design Criteria Waiver/Exception Form

REQUEST FOR SPECIAL CONSIDERATION (RFSC) **FIRE/LIFE SAFETY CRITERIA**			REQUEST NUMBER:
ORIGINATOR:		**PRIORITY**	
DATE:		☐ **EMERGENCY**	
SUPERVISOR:	J. Miller	☐ **ROUTINE**	
CRITERIA SECTION:			
LOCATION(S):			
CONSIDERATION REQUESTED:			
JUSTIFICATION:			
APPROVAL:			
PASADENA FIRE DEPARTMENT SIGNATURE/DATE		LOS ANGELES COUNTY FIRE DEPARTMENT SIGNATURE/DATE	
MTA FLSC SIGNATURE/DATE			

10.2 DESIGN MANAGEMENT AND CONTROLS

Design Management is the process of maintaining control over the design work as it progresses throughout PE and final design, ensuring the design criteria has been applied. The objectives of the design management control process are as follows:

- Ensure that qualified professionals adequately staff the design effort.
- Check for and provide consistency and accuracy in design criteria, drawings, specifications, and other planning and design goals set by the Authority.
- Ensure that schedule reviews of planning, design tasks, and documents are conducted in a timely manner.
- Conduct specific reviews as noted below.
- Ensure that systems components are compatible throughout the design of all future extensions and optional future developments.

To ensure these objectives and goals are met, the Authority shall establish a submittal routing procedure so as to ensure that the design phase progresses in a timely and systematic manner. Refer also to Section 4.3. The following procedure shall be implemented:

(1) The designer shall forward all documents and design drawings requiring review and approval by the Authority to the Chief Project Officer (CPO) or by his/her designee.

(2) The CPO will evaluate all design deliverables against the Design Criteria, contract, and Regulations noted above. Inconsistent designs will be sent back to the designer until compliance is met.

(3) In parallel to Authority review, pertinent design deliverables will be forwarded to third parties for review.

(4) All comments shall be forwarded back to the Consultant/Contractor's Program Manager within the scheduled time, as noted in the contract. A goal to not exceed thirty (30) working days will be allotted for the Authority to complete reviews.

(5) All responses to the comments shall be addressed in writing by the designer and incorporated into the document as required.

Responsibility for resolving conflicting comments rests with the manager responsible for the design element of his/her responsibility.

10.3 PRELIMINARY ENGINEERING AND DESIGN/BUILD SOLICITATION

The primary goal of Preliminary Engineering (PE) will be to define the project sufficient to enable the Authority to solicit for final design and construction through several design/build contracts. This effort is seen as distinct from development of design/build contract documents, although PE design drawings and reports will be included in the design/build contracts.

The PE effort, lead by the Authority's PE design consultant (refer to Section 3.5.3 for organization and scope), will focus on engineering required to define the project and reduce risk to the project.

Development of Design/Build contract documents will be lead by Authority staff & the PMC and will focus on performance, regulatory, constructability and design criteria engineering requirements, as well as other general design requirements such as safety, design management, design review and quality.

10.4 FINAL DESIGN

Final design will be conducted by the design/build contractors (refer to Section 3.5.6) in accordance with the design/build contracts.

10.5 DESIGN REVIEWS

To ensure that Design is managed effectively, the following reviews will be executed.

- Technical Compliance Review
- Fire Life/Safety
- Environmental Review
- Constructability Review
- Operability and System Review
- Utility Review
- Value Engineering Review

A staff member will be assigned by the Engineering Manager to review one or more of the above, based upon his/her relevant experience, for thoroughness and completion.

10.5.1 Technical Compliance Review

This review will be managed by the appropriate Design/Engineering staff for the design element of his/her responsibility in order to ensure that all relevant codes, standards, and legal technical requirements are incorporated into the design. The design will be reviewed to ensure a minimum the following applicable requirements, as appropriate, are incorporated.

- State of California Uniform Construction Code
- BOCA Basic National Mechanical Code
- National Standard Plumbing Code
- Americans with Disability Act (ADA)
- American Railway Engineering and Maintenance of Right-of-Way Associations (AREMA) Standards
- The Authority Design Standards
- OSHA Standards
- National Electric Safety Code
- LACMTA Design Criteria
- CPUC General Orders

- CALTRANS Standards

10.5.2 Fire Life Safety

This review will include at a minimum all relevant CPUC, State and Local laws and regulations as well as required LACMTA Fire/Life Safety criteria. The LACMTA will be engaged as part of this review, refer to Section 3.6.2.

10.5.3 Environmental Review

Both NEPA and CEQA have been used to ensure all of the Environmental criteria has been addressed and identified. The Environmental effort ensures all of the environmental mitigations identified throughout the FEIS/EIR effort (see Chapter 1 for Environmental Concerns) are adequately addressed.

10.5.4 Constructability Review

A Constructability Review will be executed to ensure the Project can be constructed in light of physical, operational, and environmental constraints. A checklist will be developed in consideration of the following:

- Availability of utility connections
- Materials storage space and for site access
- Long lead-time procurements
- Emergency access for fire, police, and emergency medical services
- Operational access for building tenants, customers, delivery service, and trash removal
- Mobility across the corridor
- Disruption due to noise, vibration, dust and silting
- Conformance with noise ordinances
- Truck haul roads
- Access to construction work areas and storage areas
- Reduced street parking
- Visibility of storefront windows
- Bus stop and route disruption
- Access to parking garages and auto service centers
- Daily work hours, work days per week, impact on commuter hours, and special holiday considerations for shopping and traditional parade routes
- Traffic disruptions at intersections for trackway and catenary installation, or for grade crossing construction
- Practicality of traffic maintenance
- Acceptable level of interference with on-going light rail or freight rail operations, in accordance with Authority Agreements
- Impacts on traffic on other streets from construction detours and activities

- Utilities disruptions
- Safety to the general public coordination with other projects
- Safety of workers constructing alongside an active track.
- Conformance with local air quality requirements
- Sequence of Construction
- Provisions for waterproofing and leak interception and containment
- The difficulty of forming and making field connections

10.5.5 Operability and System Review

To ensure the System will be operated cost effectively and efficiently, the LACMTA will be asked to participate in a review of the System components that make up the LRT Project. This review will focus on the stations, maintenance needs, and the system elements such as Signals, Traction Power, Overhead Catenary System, and Communication equipment and facilities.

Issues such as rulebooks and procedures will be included as part of the design to ensure that the Signaling System and other system elements support the LACMTA's Operations in a safe and reliable manner.

10.5.6 Utility Review

There are two aspects to utility review:

- Requirements for new utilities for project facilities;
- Relocation or protection in place of existing utilities.

During the Preliminary Engineering phase, effort will focus on the following:

- Discussion with electric utilities on power drops for traction power substations and passenger stations;
- Discussion with wet (water/sewage/stormwater) utilities on feeds for passenger stations and hydrants/standpipes and on stormwater drainage connections;
- Identification of existing utilities to be protected in place or relocated.

During final design, primary responsibility for utility design and coordination lies with the Design/Build contractor, who will develop plans and schedule in accordance with signed utility agreements.

10.5.7 Value Engineering Review

Value Engineering (VE) ensures that essential functions are procured at the lowest capital and life cycle cost, consistent with needed performance, quality, reliability, aesthetics, safety and operation as set out in the LACMTA Design Criteria and the project environmental documents. Upon conclusion of the PE phase of this Project, the Authority will conduct a VE study, utilizing a team consisting of members of the LACMTA and other Transit Professionals to investigate innovate cost cutting measures.

11 REAL ESTATE ACQUISITION PROGRAM

The Authority has already acquired the majority of the property required for the project through the previous acquisition (by the LACMTA in the 1990's) of the Pasadena Subdivision of the Atchison Topeka & Santa Fe (AT&SF) Railroad. This acquisition provided almost all of the property needed for the light rail and freight alignments, including structures and stations. Additional properties required for the project are largely associated with station parking lots and some traction power substations or access thereto.

11.1 GENERAL REQUIREMENTS

All property needed to support the project will be defined during PE and a Property Acquisition Plan developed once a Record of Decision is issued. The types of acquisitions anticipated are as follows:

- Fee
- Easements (trackway)
- Permanent easements (other than trackway)
- Construction easements (temporary)
- Construction staging areas

The ownership of all parcels will be identified. Engineering, surveying and other related activities will be performed by Consultants to complete the identification of all properties required and the costs associated with them.

Known property owners will likely include the following:

- Private Property Owners
- Federal Government (Corps of Engineers)
- Caltrans
- 6 Cities along the Segment 1 Foothill Extension Alignment

11.2 PROPERTY ACQUISITION

The need to acquire real property (both in fee and easement) will be determined by the Authority. Such transactions shall either be uncontested or contested acquisitions. Limited acquisitions may occur during PE (after the project receives a Record of Decision from the FTA) if approved by the Authority's Board.

A property acquisition plan will be developed once the project has completed the final environmental impact assessment. Acquisitions that may take place during PE, and certainly when Final Engineering/Construction is approved by the FTA, shall follow the following Property Acquisition Process.

11.2.1 Property Acquisition Process

Once a property is identified as needed for the project, the following actions will be taken:

(1) The Authority will prepare a parcel map for the property including an additional deed research.

(2) The Authority will obtain a title report from private title guarantee companies.

(3) The CEO or designee will formally notify the property owner that the Authority and its Consultants will enter its property, under provisions of California Statutes, to survey the property and to conduct geotechnical, hazardous materials and other analyses.

(4) The property owner is formally advised of the Authority's intent to conduct appraisals.

(5) The Authority's hazardous material remediation design Consultant will perform the necessary borings, testing, and analysis to provide plans and cost estimates for any in-site hazardous materials remediation.

(6) The Authority will review the results of the hazardous materials work for consistency with other remediation estimates for the project.

(7) The Board shall review and approve all appraisals and determinations of fair market value before an offer is made to a property owner.

(8) Once the appraisal has been reviewed a right-of-way negotiator will initiate the offer consisting of the appraisal amount and conduct negotiations consistent with the Authority granted by the Board.

(9) If contested, the Board will conduct a Hearing of Necessity and Eminent Domain condemnation proceedings begin.

Under the project's current Master Schedule, the Authority has assumed Eminent Domain for all acquisition of private properties.

11.2.2 Land Acquisition by Agreement

Upon successful completion of negotiations, the acquisition will be finalized based upon approval by the Board.

11.2.3 Contested Land Acquisition

If it is determined by the CEO, with the advice of real estate and legal personnel, that the property owner will not sell the property, or requires a price too high compared to the appraised value, the CEO will initiate acquisition utilizing Eminent Domain proceedings provided by SB-1847.

Once it has been determined that bona fide negotiations will not result in an agreement with a property owner, the condemnation process will be initiated. The CEO will advise the property owner in writing that bona fide negotiations are at an end and it is intended to commence condemnation within 14 days.

11.3 RELOCATION PLAN

Relocations shall be accomplished in accordance with applicable State and Federal laws and requirements, including 49 CFR Part 24, Uniform Relocation and Real Property Acquisition, and FTA guideline outlined in FTA Circular 5010.1B.

11.4 CONSTRUCTION STAGING AREAS

The Authority's previous acquisition of AT&SF property is anticipated to be sufficient to provide for construction staging areas. No additional temporary or permanent property acquisitions or easements are anticipated. However, if such requirements are identified prior to design/build procurement, the following procedure will be followed:

Available properties of the sizes required to house major contractor-staging operations will be identified. Negotiations with the property owners to conditionally lease, or have the right to enter upon, their respective properties will be initiated by the Authority. If negotiations are unsuccessful, the Authority may proceed with condemnation.

11.5 CONSTRUCTION EASEMENTS

The Authority's previous acquisition of AT&SF property is anticipated to be sufficient to provide for construction easements. No additional temporary or permanent property acquisitions or easements are anticipated. However, if such requirements are identified prior to design/build procurement, the following procedure will be followed:

Properties of the sizes required to enable the contractor to construct the project, but not needed for operations and maintenance, will be identified. Negotiations with the property owner(s) to conditionally lease, or have the right to enter upon, their respective properties will be initiated by the Authority. If negotiations are unsuccessful, the Authority may proceed with condemnation.

11.6 UTILITY EASEMENTS

The Authority, its Consultants, and the Contractors will identify properties required to relocate or rearrange utility facilities in coordination with the affected owning utility company. The Authority will initiate negotiations with the property owner(s) to obtain the necessary property rights. If negotiations are unsuccessful, the Authority may proceed with condemnation. Upon completion of the relocation and/or rearrangement, and in conjunction with the Master Cooperative Agreement (MCA) with the owning utility company, the property interest obtained by or for the Authority for the relocated and/or rearranged utility will be transferred to the owning utility company.

11.7 LEASES AND EASEMENTS ON EXISTING AUTHORITY PROPERTY

Some portions of the existing Authority property have been leased to adjacent property owners. Where these leased properties conflict with the needs of the project for either construction or the final alignment, the leaser will be notified to vacate the property in accordance with the lease agreement.

The major easement on existing Authority property is the permanent easement to the Burlington Northern & Santa Fe (BNSF) railroad for exclusive freight service along the alignment. The Authority will work with the BNSF to maintain freight service in accordance with the existing agreement. This will impose some restrictions on construction that will be included in relevant design/build contracts and is accounted-for in the project Master Schedule and budget.

A number of utilities cross the alignment. These will either be relocated or protected in place. See also Section 11.6 above.

12 PROCUREMENT MANAGEMENT

12.1 GENERAL APPROACH

The Authority's Procurement Department has the responsibility of providing goods and services to the Authority at a reasonable price while exercising good business practices. It is also the responsibility of the Procurement Department to conduct its business in accordance with the FTA Master Agreement, FTA Circular 4220.1E and all applicable state and local laws and regulations and the Authority's Procurement Policy. The Procurement Department is managed by the Director of Procurement.

All contracts over fifty thousand dollars ($50,000) are competitively bid or competitively negotiated. The Procurement Policy, Chapters 3 and 5, documents the process for these types of procurements.

12.2 INVITATION FOR BIDS

The Authority's Procurement Policy requires the use of sealed bidding under most circumstances for purchasing supplies, material, and equipment contracts estimated to cost over $50,000. In order for sealed bidding to be most effective, the following conditions should be present:

(a) A complete, adequate and sufficiently generic specification is developed.

(b) Adequate competition is available in the marketplace (two or more responsive and responsible bidders will compete).

(c) The procurement lends itself to a firm fixed price contract.

12.3 BID DOCUMENTS

Bid documents include a description of the supplies or services required, and any drawings, specifications, or plans that describe the nature or quality of the work to be performed. The documents also contain schedule or milestone data as well as procedural documentation relating to the bid process.

The Procurement Department will seek the assistance of relevant Authority departments and staff to provide a scope of work and other requirements as applicable. Specifically, the Project Management Department shall lead the development of technical documents and scope of work for Design/Build contracts.

12.4 CONSTRUCTION CONTRACTS

The Authority intends to utilize its successful Design/Build contracting approach used for Phase I. The terms and conditions of the Phase I contract proved to be successful and are to be used as the basis for the future construction contracts.

12.5 PROFESSIONAL SERVICES CONTRACTS

These services include Architectural/Engineering, project management assistance, construction management, feasibility studies, preliminary engineering, design, surveying, mapping, artist, and environmental. Request for Proposals (RFP) shall be the solicitation method used to communicate the Authority's requirements to prospective contractors. The Authority will publicly

announce all requirements for these services and negotiate contracts based on the demonstrated competence and qualifications of prospective contractors in accordance with the California Government Code.

The Authority has contracted with one engineering firm to perform all of the preliminary engineering of the facilities design and will contract with one firm to provide Program Management Consultant (PMC) services through final design, construction and start-up. Other firm(s) under Design/Build contract(s) will perform the final design of the stations, line sections, track and light rail systems.

12.6 PROPOSAL DOCUMENTS

The proposal documents are the same as the RFP for competitively negotiated contracts.

12.7 COMPETITIVELY NEGOTIATED CONTRACTS

Competitively negotiated contracts fall into the following general categories:

(a) Contracts for personnel services, or for other services which the Board has determined are to be competitively negotiated

(b) Purchases to be made from (or the contract is to be made with) the Federal or any State government or agency or political subdivision thereof or pursuant to any open end bulk purchase contract of any of them

(c) Purchases of specialized rail equipment, computers, telecommunications equipment, fare collection equipment, microwave equipment and other related electronic equipment and apparatus, if the Board has approved by a two-thirds vote the use of the procedures set forth in Chapter 5 of the Authority's Procurement Policy for a particular procurement

(d) Joint Development Agreements, including but not limited to those relating to fiber optic facilities

12.8 SOLICITATION OF PROPOSALS – A/E SERVICES AND COMPETITIVELY NEGOTIATED CONTRACTS

A Request for Proposals (RFP) shall be the solicitation used to communicate Authority requirements to prospective contractors when the negotiated method seeking competitive proposals is used. Each RFP shall conform to the uniform contract format approved by the Authority. The Director of Procurement shall issue written solicitations that contain all information necessary to enable prospective contractors to prepare proposals properly.

The Director of Procurement shall furnish identical information concerning a proposed procurement to all prospective contractors receiving the RFP. In determining sources to solicit, the Director of Procurement shall use all means available to ensure that an adequate number of potential qualified proposers receive the solicitation in order to obtain maximum open competition.

12.9 CONTRACT ADMINISTRATION

Construction and Design/Build contracts will be administered by procurement staff. All construction contract administration will follow Authority policies and procedures and will report directly to the Authority's Procurement Department.

Other service contracts, such as professional services contracts, will be administered by procurement contract administrators in accordance with Procurement policies and procedures.

12.10 CLOSEOUT OF CONTRACTS

A contract is physically complete only after all articles and services called for under the contract, including such related items as reports, spare parts, and exhibits, have been delivered to and accepted by the Authority, including those articles and services for which no specific compensation may have been stipulated. A contract is administratively complete when all payments have been made and administrative actions accomplished.

Authority staff shall obtain all necessary documentation to ensure that: (1) all deliverables and/or services including any reports required under the contract have been received and accepted; (2) the terms and conditions of the contract have been complied with; (3) disposition of accountable property under the contract has been accomplished; (4) a final audit (cost type contracts), when appropriate, has been performed and all questioned costs have been resolved; (5) the final voucher for the contract has been certified and sent to the appropriate finance officer; and (6) all necessary actions required to close the contract are completed and documented.

Every contract situation cannot be covered by a single closeout procedure because of the complexities of procurement activities. Therefore, the Director of Procurement will exercise judgment and discretion in the closeout of files for a completed contract.

12.11 CONSTRUCTION PROCUREMENT GUIDANCE

The Authority's Procurement Policy and Change Control Procedure for Consultants and Construction/Design-Build Contracts contain procurement guidance for all construction and professional services contracts. These documents delineate approval levels and processes for procurement transactions including changes. The Procurement Policy shall take precedence in the event of a conflict with the Change Control Procedure for Consultant Contracts or the Change Control Procedure for Construction/Design-Build Contracts.

12.12 PROCUREMENT PLAN

Major procurements of professional services, design/build contractor services and equipment are included in the project Master Schedule, including appropriate RFP development and solicitation periods. The Project Management Department and the Procurement Department will cooperate to include additional procurements as the need arises and to ensure that such procurements are timely and do not impact existing project or contract milestones.

Once a procurement need is identified, the Project Management and Procurement Departments will coordinate to determine the required schedule for solicitation development and procurement. The Director of Procurement and CPO will recommend a procurement method (e.g. one-step bid; negotiated procurement; etc) to the CEO and the Board for consideration. A contract budget will be estimated and funding source(s) will be determined with the Finance Department and presented to the CEO/Board.

The Procurement Department will request the assistance of applicable Authority departments and staff for solicitation development. Once the solicitation is complete it will receive legal review before release. The Document Control Manager will assist the Procurement Department with bid document distribution, receipt and tracking of bidder's questions, and issuance of addenda. The

Procurement Department will request the assistance of applicable Authority departments and staff to answer bidder's questions and with addenda development.

Once bids are received, the Procurement Department will request the assistance of applicable Authority departments and staff as necessary with bid review.

13 CONSTRUCTION PROGRAM

13.1 CONSTRUCTION MANAGEMENT

The Design/Build Contractors will undertake almost all construction activities. During the Build phase of the project, the Contractors will construct the project's facilities and systems. The Contractors may also work with the storm system, sewer system and water mains for the local agencies and will coordinate the balance of the utility relocations of gas, electric power, telephone, cable television and fiber optics with the private utility companies.

The Authority will provide oversight of Contractors' construction and construction safety activities.

13.2 CONSTRUCTION CONTROL

The Contractors shall complete the construction and fabrication of the facilities and systems in accordance with the provisions of the contract, along with their design and construction documents, applicable laws, regulations and codes. Such implementation will be consistent with the Contractor's Quality Assurance and Control Plan, Safety Plan and other documents approved by the Authority.

13.3 DOCUMENT CONTROL

Submittals from Contractors shall be in accordance with the Contract Documents Review List (CDRL) system adopted by the Authority. Refer to Section 4.3 for Document Control procedures for submittals. Copies of all project documents will be archived in accordance with the procedures approved by the Authority.

13.4 CONSTRUCTION REVIEW MANAGEMENT OVERSIGHT

Construction review management is the process of exercising control over the progressing construction and fabrication. The primary responsibility for construction review will be with the Contractor through its construction management staff, performing activities in accordance with the design documents and the approved Quality Assurance and Control Plan. The Authority's overview of construction will consist of field surveillance activities on an intermittent basis performed on the Contractor's construction processes, procedures and activities. Such efforts will be exercised on an "oversight" basis of the Contractor's work ensuring substantial compliance with the design documents and other related contract requirements in a reasonable and prudent manner.

13.5 COMPLIANCE AUDITS

In addition to the oversight activities, the Authority will conduct Compliance Audits on the work performed by the Contractors who remain fully responsible for the quality control of their own work. The Compliance Audits will be primarily focused on activities with the highest probability of a non-conformity occurrence and the highest impact on the final product.

13.6 SAFETY OVERSIGHT

Contractors are responsible for the safety of their construction projects. The Authority will review Safety Plans submitted by Contractors for conformance with their Contract. The Authority personnel will provide safety oversight to verify compliance of each Contractor and its subconsultants with the applicable plan.

The Authority will coordinate compliance of the Contractors with the requirements of the Authority's Owner Controlled Insurance Program (OCIP) or Contractor Controlled Insurance Program (CCIP), as applicable.

13.7 SUBMITTAL ROUTING PROCEDURE

The Contractor shall review submittals, and stamp and sign each submitted item as reviewed and approved, before submission to the Chief Project Officer (CPO). Refer to Section 4.3 for Document Control procedures for submittals. If required, comments will be resolved in a joint meeting between Contractor and the Authority.

14 PUBLIC PARTICIPATION/PUBLIC RELATIONS

14.1 PUBLIC EDUCATION AND PARTICIPATION PROGRAM

The Authority's Public Affairs department performs duties that cover both general project education goals as well as construction mitigation and safety implementation. The department's manager and staff work closely with the project consultants and contractor to accomplish the following objectives:

- Provide forums and documentation systems for community input throughout the environmental review process as mandated by the National Environmental Policy Act (NEPA) and by the California Environmental Quality Act (CEQA).
- Educate the citizenry of the San Gabriel Valley, with special attention to the communities within the corridor cities, of the benefits and services of the Metro Gold Line Foothill Extension.
- Involve the communities and their city counterparts (i.e. design, cultural, historical committees) in creating station sites and linkages that support community goals for improved transportation access, as well as reflecting the character and history of cities.
- Identify residences, business, schools and other impacted entities along the corridor, and provide a comprehensive construction education, notification program, and special mitigation programs as needed or requested by cities and communities along the corridor.
- Develop and monitor a construction safety plan for the general public and more targeted efforts for residences, businesses, schools, etc. within the vicinities of construction.
- Provide ongoing education and special briefings to elected officials and stakeholders within the Foothill Extension service area.

In tandem with these objectives, the Public Affairs department provides overall public affairs services for the Construction Authority including the development and oversight of project education materials, media relations, and other communication tools to enhance project understanding and to respond to the public's questions and concerns. These include:

- Project Newsletters
- Project Hotline
- Project Website
- Project Presentations
- Brochures, fact sheets and other collaterals
- Speakers Bureau
- Special Event Outreach

The public affairs staff participates in community events and organizations such as chambers of commerce, rotary clubs, university and college events and outreach, and special regional events, such as the Los Angeles County Fair. The staff visits elementary and high schools, as well as other youth and family activity centers, within the vicinity of construction or whose pedestrian access crosses the alignment, to develop mitigation and safety measures as needed.

The department organizes community meetings and work sessions affiliated with the design of station environments, including those, which involve the Public Art Program.

During construction, members of the staff attend construction meetings to ensure and monitor construction notification measures, implementation of mitigation efforts, as well as timely responses to public concerns gathered via the Project Hotline.

Following completion of construction and during pre-revenue testing / operations, the Public Affairs staff works closely with the system operator (LACMTA) and the contractor on a heightened public education and safety campaign, providing community outreach liaison support to the operator as needed.

The Public Affairs staff serves as the key organizers and executers of all station dedication and other specials events affiliated with construction completion.

15 QUALITY ASSURANCE/QUALITY CONTROL

15.1 THE AUTHORITY'S QUALITY ASSURANCE PLAN/CONSULTANT

Quality Management will be executed through a Quality Assurance Plan, conforming with FTA quality guidelines. This Plan and its execution will be the responsibility of an independent and qualified consultant. The QA plan will address, at a minimum, the following:

- Design compliance for all the mandatory criteria and mandatory regulations
- Accuracy of calculations, dimensions, scales, etc.
- Managing schedules, budgets, and all surveillance work activities
- Configuration Management to control design changes
- Construction conformance and work quality

Prior to acquiring the services of a QA consultant, QA responsibility will reside with the Programs Management Director.

15.2 THE AUTHORITY'S QUALITY ASSURANCE EFFORTS

In addition to the QA Plan and the independent consultant, the Authority will continue to manage quality, primarily through the Management Control Systems and Design Management Process defined in Section 4 and 10 respectively of this Project Management Plan.

15.3 FINAL DESIGN AND CONSTRUCTION QA/QC CONTROL PLAN

The QA/QC program used for Phase I of the Gold Line during final design & construction proved successful and will be employed for the Foothill Extension as identified below. Contents of the program include the following:

- Contractor's QA/QC Plans
- Quality Systems Requirements
- Standards & Compliance
- Authority Verification of Plan Implementation
- QA/QC Plans and Submittal Schedule
- QA/QC Document Control
- QA/QC Plan Update Process

15.3.1 Contractors' QA/QC Plans

The Project's Procurement Contracts will include requirements for the development by the Design/Build Contractor(s) Quality Assurance and Control Plan covering design and construction activities. These Plans, which will be reviewed and approved by the Authority, and will be the master guiding document for the Contractors' QA/QC actions.

The Contractor(s) will develop a Quality Control Program (QCP) and implement the QCP within its organization and within Subcontractor organizations of all tiers. The QCP shall ensure that the design, construction and manufacturing of all facilities and equipment to be provided under the

Contract will comply with the requirements of the Contract Documents and that all materials incorporated in the Work, and all elements of the Work will meet or exceed the standards in the Contract Documents and perform their intended purpose. The approved QCP shall be a living document and supplemented when required to commence with new aspects of Work.

15.3.2 Quality Control Plan – Part One

Part One of the QCP shall include, at a minimum, the following:

A. A description of the contractor's QC organization, including a chart showing lines of authority and reporting responsibilities and relationships to the Authority's organization, the Contractor's design staff and construction staff. The persons and organizations performing QC functions shall have sufficient authority and organizational freedom to identify quality problems, and to initiate, recommend, provide and verify implementation of solutions. Persons performing QC functions shall be separate and independent from any other functions, and shall be at an organizational level that ensures that they are not influenced by the impact on schedule, performance or cost resulting from implementation of QC measures.

B. The duties, responsibilities and authority of each person assigned a QC function.

C. Procedures for the presentation, preparation and checking of submittals, including those of Subcontractors, off-site fabricators, suppliers and purchasing agents.

D. A description of QC actions such as checking, inspection and testing, including frequencies and procedures for each type of action that verify activities affecting the quality of Work have been correctly performed and meet all Contract requirements.

E. Procedures to be followed by Subcontractors to ensure the quality of the Work provided by them and that all such Work shall be in compliance with the QCP.

F. Reporting and documentation procedures, including proposed reporting formats.

15.3.3 Quality Control Plan – Part Two

Part Two of the QCP shall be developed to ensure that all design documents and construction documents are prepared in accordance with good, prudent and generally accepted design and engineering practice and shall meet all requirements of the Contract Documents. Additionally, Part Two of the QCP shall include:

A. The QC procedures for each type of design document and construction document. These procedures shall specify measures to be taken by the Contractor to: (1) ensure that appropriate quality standards are specified and included in the design documents and construction documents and to control deviations from such standards; and, (2) for the selection and review for suitability of all materials, equipment and elements that are included in the Project.

B Specific QC procedures for preparing and checking all plans, calculations, drawings and other items submitted, to ensure that they are independently checked and back-checked in accordance with generally accepted engineering practices, by experienced engineers.

C. The level, frequency and methods of review of the adequacy of the design of the Project, including the methods by which all final design documents and construction

documents shall be independently reviewed, verified for adequacy of design and back-checked.

D. Procedures for coordinating Work performed by different persons in the same area, or in adjacent areas or in related tasks to ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawings and the specifications.

E. Procedures to (1) ensure that all personnel performing work are familiar with all requirements of the Contract Documents, including all referenced standards; (2) for the education, training and certification as appropriate, of personnel performing activities affecting or measuring quality of the Work; and (3) ensure that all Work is performed according to the QCP.

F. Those elements of the Contract requirements, Design Documents or Construction Documents, if any, requiring special QC attention or emphasis, including applicable standards of quality or practice to be met, level of completeness and/or extent of detailing required.

G. By discipline, the name, qualifications, duties, responsibilities and authorities for all persons responsible for design and construction QC.

H. Any requirement for, and the name, qualifications, duties, responsibilities and authorities of, external technical experts necessary to ensure the quality of the design of the Project.

I. The resources required for the design QC functions, including proposed specific timing, manpower and resource requirements, including scheduled QC activities.

J. The requirements for documentation; for the filing of design criteria, reports and notes, calculations, drawings, schematics, supporting materials, etc.; and for the specific responsibilities of personnel to satisfy these requirements.

15.3.4 Quality Control Plan – Part Three

Part Three of the QCP shall identify all materials, equipment and all elements of the Work, as well as the individuals and organizations performing any functions under the QCP, and shall provide control over all activities affecting the quality of all such materials, equipment and elements of the Work. Part Three of the QCP shall:

A. Procedures to ensure that all activities affecting the quality of the Work will be accomplished under suitably controlled conditions, using appropriate equipment, with confirmation that all prerequisites to the proper accomplishment of a given task have been satisfied.

B. Procedures that ensure that (1) all Contractor personnel are familiar with all requirements of the Contract Documents pertaining to their responsibilities; (2) the education, training and certification, as appropriate, of personnel performing activities affecting or verifying quality of the Work; and (3) all Work is performed according to the QCP.

C. Procedures to ensure that all the Work conforms to all the requirements of the Contract Documents and the construction documents, and that all materials, equipment and elements of the Work to be incorporated in the Project will perform

satisfactorily for the intended purpose. The QCP shall specifically include the Contractor's procedures for inspecting, sampling, testing and checking the Work.

D. Measures to control the issuance of and changes to documents which prescribe activities affecting quality.

E. Measures to verify that purchased materials, equipment and services conform to the Contract requirements and the construction documents.

F. Procedures for identification and control of materials, equipment and elements of the Work.

G. Procedures to ensure that materials, equipment or elements of Work which do not conform to requirements are not used or installed.

H. A program for inspection of all Work to verify conformance with the documented instructions, procedures and requirements of Contract Documents. Such inspection shall be performed by individuals other than those who performed the activity being inspected.

I. A program to confirm execution of all testing required in the Contract Documents to demonstrate that all materials, equipment and elements of the Work will perform satisfactorily for the intended purpose and meet the standards specified in the Contract Documents, including the final design documents. The program shall specify written test procedures for all tests which incorporate the requirements and acceptance limits. The program shall require test results to be documented and evaluated to confirm that test requirements have been satisfied.

J. A listing of independent testing laboratories to be used to perform sampling and testing required by the Contract Documents. The proposed laboratory must possess acceptable accreditation programs such as the National Institute of Standards and Technology (NIST), National Voluntary Laboratory Accreditation Program (NVLAP), or the American Association of State Highway and Transportation Offices (AASHTO) program.

K. Measures to ensure that tools, gauges, instruments and other measuring and testing devices used in activities affecting quality are properly maintained, controlled, calibrated and adjusted.

L. Procedures to control the handling, storage, shipping, cleaning and preservation of materials and equipment to prevent damage or deterioration.

M Procedures to indicate, by the use of markings such as stamps, tags, labels, routing cards or other suitable means, the status of inspections and tests performed upon individual items of the Work.

N. Procedures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and equipment, deviations and other non-conforming Work are promptly identified and corrected.

O. Measures ensuring compliance with all QC procedures recommended by the testing manufacturer.

P. Provide for documentation of QC efforts.

Q. Provide a documented procedure for establishing and maintaining facilities and equipment.

15.3.5 Quality System Requirements

A Quality system is defined as the organizational structure, responsibilities, procedures, processes and resources for implementing quality management. The quality system requirements for the Contractors will, in accordance with ISO 9001, include the following items:

- Management responsibility
- Quality System
- Contract Review
- Design control
- Document and Data Control
- Purchasing
- Control of customer-supplied product
- Product identification and traceability
- Process control
- Inspection and testing
- Control of inspection, measuring and test equipment
- Inspection and test status
- Control of nonconforming product
- Corrective and preventive action
- Handling, storage, packaging, preservation and delivery
- Control of quality records
- Internal quality audits
- Training
- Servicing
- Statistical techniques
- Standards and Compliance

The Quality Assurance and Control Plan shall comply with all applicable laws and regulations of all State, regional and regulatory agencies exercising jurisdiction over the project including, but not limited to:

- Caltrans
- Americans with Disabilities Act (ADA)
- American Railway Engineering and Maintenance of Right-of-Way Association (AREMA)
- American Society for Testing and Materials (ASTM)

- California Uniform Construction Code (UCC)

In addition to compliance with the regulations of the above regulatory agency, QA/QC design and construction activities shall be performed in accordance with the State and regional building codes listed below.

15.3.6 Authority Verification Of Plan Implementation

The Authority will review and approve the Contractors' Quality Assurance and Control Plan for compliance with the Contract requirements, and will use a variety of techniques to verity and confirm to the implementation of such Quality Plan by the Contractor.

A) Oversight

The Authority's Construction Management staff, supported by the QA Consultant, will perform, on an intermittent basis, field surveillance activities on the Contractor's construction activities. These monitoring activities will be documented. All concerns will be directed to the Construction Manager.

B) Compliance Audits

Compliance Audits will be conducted by the Authority's QA Consultant on the work performed by the Contractors. Checklists will be used to standardize the audit process. A weekly sampling plan will be prepared to audit the construction activities with the highest impact on the Project. An audit report will be prepared, presenting the observations that were either found to be in compliance or not with the contractual requirements. When a non-compliant finding is identified, a Non-Compliance Notice (NCN) will be forwarded to the Contractor for their disposition. All Audit reports, Non-Compliances Notices and the responses from the Contractors will be incorporated in the Project's files.

C) Management Plan Audits

Management Plan Audits will be conducted by the Authority's QA Consultant to confirm the implementation of each Contractor's Quality Assurance and Control Plan. A Management Plan Audit Report will be generated for each audit. Checklists will be used to determine if the audited item is in compliance with the Contractor's Quality Assurance and Control Plan accepted by the Authority. A Corrective Action Request will be issued to the Contractor for the non-compliant findings identified during the audits. All Audit Reports, Corrective Action Requests and responses from the Contractors will be incorporated in the Project's files.

15.3.7 QA/QC Control Plans Submittal Schedule

The Contractor shall follow the Quality Assurance and Control Plan submittal requirements as detailed in the Contract documents.

15.4 QA/QC DOCUMENT CONTROL

15.4.1 Authority QA/QC Document Control

All incoming QA/QC documents to the Authority will be filed in accordance with the Authority's Document Control System. Furthermore, in order to prevent confusion and promote consistency, all documents or items pertaining to any QA/QC Plan or QA/QC issue shall be submitted to the

Authority's Chief Project Officer, who will further distribute copies of the material to the Authority staff as appropriate.

A transmittal letter with the appropriate Contract Documents Review List (CDRL) number must be included as the cover to all submittals to the Authority.

15.4.2 Design/Build Contractor QA/QC Document Control

The Contractor shall implement a QC documentation program to identify, control and store data of the Work in a manner, which will allow easy retrieval and will ensure dissemination to all affected disciplines. The Contractor shall maintain complete records of QC activities and accountability including all QC operations, inspections, activities and tests performed. The program shall include all data required for the Work as well as all communications among the Contractor's QC organization, design organization, construction organization, all subcontractors regardless of the tier, and the Authority, which addresses Contract or informational issues. Such records shall include a monthly written certification by the Construction QC Manager that the QCP and all of the measures and procedures provided therein are functioning properly and are being fully complied with.

15.5 QA/QC PLAN UPDATE PROCESS

It is anticipated that some or all portions of the Contractor's Quality Assurance and Control Plans may need to be updated, revised or supplemented during the life of the Project or during the applicable time frame for the Contractor's consultants. The Contractor's Quality Manager shall follow the process noted herein when updates to their program plan are necessary:

1. The Contractor's Quality Manager shall present a copy of the revised Quality Assurance and Control Plan with a transmittal letter to the Authority's Chief Project Officer.

2. The Authority's Chief Project Officer, including the Authority's QA Consultant, shall distribute the revised Quality Assurance and Control Plan to the appropriate staff for review and comment.

3. The Authority's Chief Project Officer, or designee, will assimilate staff comments, provide final review, and decide on a status of "accept", "accept with comments" or "do not accept any such recommended Plan revisions" within 30 days of receipt, and provide written notice of these decisions back to the Contractor.

16 TESTING AND ACTIVATION

This section describes the project organization and plan for testing and activation of the project. The Programs Management Director will be responsible for testing and activation of the project, including liaison with the LACMTA and BNSF railroad.

16.1 INTEGRATED TESTING AND START-UP PLAN

Prior to Design/Build Procurement, the Authority will develop an Integrated Testing and Start-Up Plan, describing the planned organization, responsibilities, procedures, and activities for testing and activation of the Project. The plan will focus on the activities for integrated testing and the support of rail activation. The plan will not describe the needs for operational staffing as this the responsibility of an independent organization; the LACMTA. The Integrated Testing and Start-Up Plan will include the following sections:

16.1.1 Introduction

This section will provide a general description of the project and contracting regime, together with an overview of the responsibilities of the major project participants.

16.1.2 Project Organization

This section will describe the project organization, roles and responsibilities for testing and start-up, including; Authority staff; Design/Build Contractor; the LACMTA; BNSF railroad; and regulatory agencies (e.g. CPUC and FRA). This section will also describe the role of the Rail Activation Group in organizing, managing and scheduling integrated testing and activation activities, including procedures such as flagging and rail vehicle operations.

16.1.3 Integrated Testing

This section will describe the overall list and sequence of integrated testing for the project.

16.1.4 Testing Schedule and Resource Allocation

This section will describe the integrated testing schedule and set the allocation of Authority and LACMTA resources to support integrated testing and start-up.

16.2 FACTORY, CONSTRUCTION AND SUBSYSTEM TESTING

Factory, construction and subsystem testing is the responsibility of the Design/Build contractor, including the development of a testing plan, test procedures, scheduling and execution of tests and submittal of test reports. The Authority will be notified in advance of all testing to provide the opportunity to witness testing. Tests to be performed are defined mainly by national, state and local standards and codes, and traditional tests performed for the various project elements.

Authority witnessing of testing will focus on tests that are determined to be of higher risk to the project, and especially those on-site tests that will impact rail activation, safety, and system performance.

16.3 INTEGRATED TESTING

Integrated testing is primarily the responsibility of the Design/Build contractor, including the development of a testing plan, test procedures, execution of tests, and submittal of test reports. In

addition, some testing may be lead by the LACMTA for those project elements that the LACMTA will provide. The Design/Build contractor, Authority and LACMTA will discuss, organize and schedule integrated tests through the Rail Activation Group (refer to Section 3.6.3). Tests to be performed will be defined in the Design/Build Contract, in addition to traditional tests performed for the various project elements.

In addition, the LACMTA will organize and execute (with as-needed Design/Build Contractor assistance) fire/life safety and emergency drills to enable emergency responders to simulate various emergency situations.

16.4 PRE-REVENUE & POST-REVENUE TESTING

The Design/Build Contractor will be required to provide as-needed support to the LACMTA during pre-revenue operations in order to respond to any problems or issues that arise.

During the first months of revenue operations, the Design/Build Contractor will be required to conduct a System Performance Demonstration to demonstrate the ability of the system to achieve the required on-time performance of rail operations.

17 LEGAL AUTHORITY AND CONSTRAINTS

17.1 LEGAL AUTHORITY AND ORGANIZATION

The Legal Authority for both the Authority and the LACMTA are described below.

17.1.1 Los Angeles to Pasadena Metro Blue Line Construction Authority (Authority)

(1) State of California Senate Bill 1847, introduced by Senator Adam Schiff and signed by Governor Pete Wilson on September 30,1998, established the Los Angeles to Pasadena Metro Blue Line Construction Authority, effective January 1,1999. The Authority has been established for the purpose of awarding and overseeing all design and construction contracts for completion of the Los Angeles - Pasadena Metro Gold Line light rail project from Union Station in the City of Los Angeles to Sierra Madre Villa Boulevard in the City of Pasadena and any mass transit guideway that may be planned east of Sierra Madre Villa Boulevard along the rail right-of-way extending to the City of Claremont.

(2) Public Utilities Code Division 12.7, Chapter 6 officially created the Authority. Section 132400 et seq. was added to the Public Utilities Code outlining the legal authority of the Authority and duties of the LACMTA.

(3) The Authority shall be governed by a Board consisting of five (5) voting members and one nonvoting member who shall be appointed as follows:

- Three members shall be appointed by the City Councils of the Cities of Los Angeles, Pasadena, and South Pasadena.
- One member shall be appointed by the President of the Governing Board of the San Gabriel Valley Council of Governments.
- One member shall be appointed by the LACMTA.
- The nonvoting member shall be appointed by the Governor.

(4) The Authority holds all the powers necessary for planning, acquiring, leasing, developing, jointly developing, owning, controlling, using, jointly using, disposing of, designing, procuring, and building the Project, including, but not limited to all of the following:

- Acceptance of grants, fees and allocation from state, local agencies and private entities.
- Acquiring, through purchase or through eminent domain proceedings, any real property necessary for, incidental to or convenient for the exercise of the powers of the authority.
- Incurring indebtedness, secured by pledges of revenue available for project completion.
- Contracting with public and private entities for the planning, design, and construction of the project.
- Entering into cooperative or joint development agreements with local governments or private entities.
- Relocation of utilities as necessary for completion of the project.

(5) The Authority Board may appoint an executive director to serve at the pleasure of the Authority. The executive director may appoint staff or retain Consultants as necessary to carry out the duties of the Authority.

(6) The LACMTA shall identify and expeditiously enter into an agreement with the Authority to hold in trust with the Authority all real and personal property, and any other assets accumulated in the planning, design and construction of the project, including, but not limited to, rights-of-way, documents, third-party agreements, contracts and design documents, as necessary for the completion of the project.

(7) The LACMTA shall transfer to the Authority for completion of the project the unencumbered balance of all local funds that have been programmed for completion of the project and identified in the Restructuring Plan adopted by the LACMTA Board of Directors on May 13th 1998.

(8) The Authority shall enter into a memorandum of understanding with the LACMTA that will specifically address the ability of the LACMTA to review any significant changes in the scope of the design, construction, or both design and construction of the project.

(9) The Authority shall not encumber any future fare box revenue anticipated from the operation of the project.

(10) With the exception of joint development projects, the Authority shall not encumber the project with any obligation that is transferable to the LACMTA upon completion of the design and construction of the project. The design and construction to be administered by the Authority does not include rolling stock, which is a component of the operation of the project and shall be administered by the LACMTA.

(11) The Authority shall be dissolved upon completion of construction of the light rail project.

17.1.2 Los Angeles County Metropolitan Transportation Authority (LACMTA)

(1) Assembly Bill 1784 required the Los Angeles County Transportation Commission (LACTC) and the Southern California Rapid Transit District (SCRTD) to submit a plan to the legislature by January 1992, which reorganized the agencies to provide "a unified comprehensive institutional structure which requires maximum accountability to the people."

(2) Assembly Bill 152, signed by Governor Pete Wilson on May 19, 1992, merged the LACTC and SCRTD into the LACMTA, effective February 1, 1993.

(3) Public Utilities Code 130050.2 officially created the LACMTA, which is the single successor agency to the LACTC and SCRTD. Sections 130051 et seq. were added to the Public Utilities Code outlining the legal authority of the LACMTA.

(4) The board members of the LACMTA were appointed February 1, 1993. The LACMTA had no powers, duties or responsibilities until February 1, 1993. From February 1, 1993 until April 1, 1993, the LACMTA exclusively exercised any of the powers of the board of directors of the SCRTD and the governing body of the LACTC, except those powers that the LACMTA had expressly delegated to the SCRTD or to the LACTC.

(5) On April 1, 1993, the terms of office of members of the board of directors of the SCRTD and of the governing body of the LACTC were terminated. The board of directors and

governing body were succeeded by the governing body of the LACMTA, which could act on behalf of the SCRTD and the LACTC. However, the obligations, liabilities and indebtedness, bonded and otherwise, of the SCRTD and the LACTC remained with the respective agencies until May 1, 1993, when the agencies were abolished and succeeded by the LACMTA.

(6) On March 28, 1990 the LACTC formally adopted the Pasadena Blue Line Project (later renamed the Metro Gold Line) and on January 27,1998 the LACMTA Board formally approved the CEO's recommendation to suspended indefinitely the partially completed Pasadena Gold Line Project.